GLOBAL SUBUNIT SPECIALIZATION: AN ORGANIZATIONAL PERSPECTIVE

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ABSTRACT

The last 20 years have seen fundamental changes in the organization of firms' value chain. A large body of knowledge has been developed to inform the geographical ("offshoring") and organizational ("outsourcing") allocation of firm activities; however, much less research has explored the value chain disaggregation as an organizational process, in particular the design choices involved as the new subunits form and expand. My thesis seeks to contribute in this area, by analyzing organizational design issues during the formation and evolution stages, in fully owned and outsourced business units. The three empirical papers on this thesis are situated as follows:

Chapter 3 examines the formation of a fine-sliced business unit, which result from the processes of geographical and organizational disaggregation in the firm's value chain activities. It focuses on the impact that the initial geographical and functional scope of an offshoring arrangement poses over its performance. This paper combines the resource-based view and complexity theory in large sample hypothesis testing to identify four impacts of fine-slicing on the subunit's performance: the number of geographical locations, the number of related functions, the structural complexity, and the ownership mode effects. By its focus on performance at the project level rather than measuring performance at the firm level, Paper I contributes with a fine-grained understanding of performance effects involving the allocation of related and unrelated activities.

Chapter 4 moves forward to analyze the evolution within the fine-slices. Specifically, this paper explores how previous performance affects the patterns of future offshore internationalization. This paper draws on the Internationalization Process Model with Performance Feedback Theory to explain the geographical and functional expansion of fully owned and outsourced offshoring in large sample hypothesis testing. The results of Paper II show that while the attainment of financial aspirations affects geographical expansion, it is the fulfillment of operational aspirations that explains functional diversification within a country. Moreover, I find that while ownership structure moderates the relation between financial aspirations and geographical

expansion, the relation between operational aspirations and functional expansion is similar under both, fully owned and outsourced organizing modes.

Chapter 5 explores how changes in the organizational architecture affect capability development. By comparing two successful offshoring firms that followed highly divergent strategies, this qualitative analysis compares and contrasts the architectural mechanisms used in fully owned and outsourced offshoring arrangements on their different stages of development. Despite their divergence in strategies, I find striking coincidences in the architectural tools used in their initial stages, which became more divergent as their capabilities solidified. Beyond that, I find that organizational changes are, in turn, affected as offshoring capabilities develop.

Overall, the studies in this dissertation contribute to the analysis of organizational choices as firms realize the fine-slicing of their value chains. Moreover, it contributes to a better understanding of the design choices that help enhance a subunit's performance, identifies the drivers of functional and geographical scope changes in offshoring operations, and helps identify the organizational design mechanisms used to foster the development of offshoring capabilities.

RÉSUMÉ

Lors de ces dernières 20 années, des changements fondamentaux sont survenus dans l'organisation des chaînes de valeur des entreprises. Beaucoup de nouvelles connaissances sont venues alimenter et influencer la répartition géographique ("*offshoring*" ou délocalisation) et organisationnelle ("*outsourcing*" ou externalisation) des activités des entreprises. Cependant, beaucoup moins de recherches ont été conduites sur la *Optimal Disaggregation* (le choix optimal de répartition géographique et structure organisationnelle pour une entreprise qui décide de délocaliser) et sur les implications de la conception d'un tel projet, alors que de nouvelles sous-unités se créent et se développent simultanément. Ma thèse vise à apporter une contribution dans ce domaine, en analysant les problèmes soulevés par la conception de ces stratégies, lors de leur formation et de leur évolution au sein d'unités économiques externalisées et captives. Ma thèse se divise en trois travaux empiriques qui sont répartis comme suit:

Le Chapitre 3 examine la formation d'une unité économique *fine-sliced* (une partie limitée, souvent délocalisée, du processus de fabrication d'un produit), en se concentrant sur l'impact que l'étendue géographique et fonctionnelle initiale d'un arrangement *offshore* a sur sa performance. Cette partie combine deux théories (la *Resource-Based View* et la *Complexity Theory*) et teste empiriquement des propositions qui en sont dérivées sur base de larges d'échantillons, afin d'identifier quatre impacts qu'a le processus de *fine-slicing* sur la performance d'une sous-unité: le nombre d'emplacements géographiques, le nombre de fonctions liées à la sous-unité, la complexité de la structure, et les effets des différents types de propriété d'entreprise sur la sous-unité. En se concentrant sur la performance au niveau du projet plutôt qu'au niveau de la firme, le Papier I apporte une compréhension détaillée des performances des activités, qu'elles soient liées entre elles ou pas.

En prolongement, le Chapitre 4 analyse l'évolution des *fine-slices* de l'intérieur**.** Plus précisément, ce travail explore l'influence des performances passées sur les schémas des futures internationalisations *offshore*. Ce chapitre s'appuie sur deux théories - le *Internationalization Process Model* et la *Performance Feedback Theory* -, ainsi qu'un test empirique sur de larges

échantillons, pour expliquer l'expansion géographique et fonctionnelle des délocalisations externalisées et captives. Les résultats du Papier II montrent que, plutôt que l'atteinte des buts financiers sur l'expansion géographique, c'est bien la réalisation des plans opérationnels qui explique la diversification d'une entreprise au sein d'un même pays. Par ailleurs, alors que les différents types de mode de gouvernance affectent la relation entre aspirations financières et expansion géographique, la relation entre plans opérationnels et diversification fonctionnelle est similaire à la fois pour les activités internes et externalisées.

Le Chapitre 5 explore l'influence des changements dans la structure organisationnelle d'une entreprise sur sa capacité de développement. En comparant les différentes stratégies adoptées lors de deux délocalisations réussies, cette partie soulèvera les similarités et différences des mécanismes structurels utilisés à différentes étapes de développement entre les activités internalisées et celles externalisées. Malgré leurs différentes stratégies, j'ai observé de fortes similarités entre les outils structurels utilisés par ces différentes entreprises aux stades initiaux de leur développement, même s'ils divergent par la suite. Par ailleurs, j'ai trouvé que les changements organisationnels, à leur tour, sont affectés par le développement des capacités de délocalisation.

Globalement, les conclusions de cette thèse contribuent à l'analyse de l'*Optimal Disaggregation* et à celle des challenges d'organisation structurelle soulevés par le développement d'unités délocalisées. De plus, elles contribuent à mieux comprendre les choix de conception de tels projets aidant à améliorer les performances des sous-unités, à identifier les sources des changements à échelle fonctionnelle et géographique lors des opérations de délocalisation, et à discerner les mécanismes de conception organisationnelle utilisés pour encourager le développement des capacités de délocalisation.

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This thesis has incredibly benefitted from a large collective effort that spans beyond the author himself. I would like to recognize the endless support received from faculty, colleagues, friends and family well beyond what can be recognized in the few lines included below.

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CHAPTER 1: INTRODUCTION

"There is a problem of specialization among individual employees, and a problem of specialization among organizational units. There is no reason to suppose that both sets of problems have the same answers or that the same general principles apply to both."

March & Simon, Organizations, 1958 (Ed. 1993) p. 179

1.1 Theoretical motivation and outline of the dissertation

One of the most visible consequences of globalization is the increased disaggregation occurring within sections of a firm's value chain. In the literature, this phenomenon has been continuously referred to under names such as fine-slicing (Contractor, Kumar, Kundu, & Pedersen, 2010), global distribution of work (Kumar, Van Fenema, & Von Glinow, 2009), global specialization (Asmussen, Pedersen, & Petersen, 2007; Beugelsdijk, Pedersen, & Petersen, 2009) and offshoring (Lewin & Peeters, 2006). The rationale behind "fine-slicing" is that it permits a more precise use of location and ownership advantages (Buckley & Ghauri, 2004), the attainment of synergistic gains between organizations (Strikwerda & Stoelhorst, 2009), an increase in flexibility (Volberda, 1996), a focus on core competencies (Hagel & Singer, 1999), reduced costs (Shi, 2007), and even the potential development of new revenue streams (Lacity & Fox, 2008). This phenomenon involves new patterns of division, distribution, and coordination of activities within and across firms (Child & McGrath, 2001; Sinha & Van de Ven, 2005), which is fundamentally changing the way firms (particularly large firms from developed countries) organize to compete globally (Lewin & Peeters, 2006).

A substantial body of literature has been developed to analyze the fine-slicing phenomenon, specifically concerning issues of antecedents (Kedia & Mukherjee, 2009; Lewin & Volberda, 2011), location selection (Doh, Bunyaratavej, & Hahn, 2009; Hätönen, 2009; R. Mudambi & Venzin, 2010), governance mode (Julien Gooris & Carine Peeters, 2014; Hutzschenreuter, Lewin, & Dresel, 2011a; S. M. Mudambi & Tallman, 2010), day-to-day coordination (Ansari, Sidhu, Volberda, & Oshri, 2010; Kumar et al., 2009; Srikanth & Puranam, 2011), and consequences (Jensen, 2009; Larsen, Manning, & Pedersen, 2013; Nieto & Rodríguez, 2011). However, while a large body of knowledge has been established to inform organizational

("outsourcing") and geographical ("offshoring") decisions, much less research has explored value chain disaggregation as an organizational process, in particular its architectural choices and implications (Greenwood & Miller, 2010; Schmeisser, 2013). My thesis constitutes a step in this direction, as it seeks to obtain a better understanding of the decision rules by which highly disaggregated business units are formed and modified, as well as the architectural mechanisms used in their development.

The purpose of my dissertation is to analyze the dynamics of fine-slicing and the effects they pose on a firm's structure. I define the unit of analysis as the "specialized subunit," which is a value-added entity that concentrates its operations on executing "fine-sliced" activities (Contractor et al., 2010) that have global rather than local demand (Manning, Massini, & Lewin, 2008; Schmeisser, 2013). With my thesis, I have three specific goals: i) Analyze formation decisions, focusing on the identification of the subunit's configurations facilitating the attainment of superior performance levels in the early stages of development; ii) Study the evolution process, specifically by identifying the mechanisms that motivate distinct subunit development trajectories; and iii) Explore the role that organizational architecture and architectural changes have on generating subunit capabilities, as those capabilities may impact a firm's overall configuration. These goals can be translated into the following research questions:

> *(1) How does the initial geographical and functional scope affect the specialized subunit's performance?*
> *(2) How does the performance of the current operations influence the geographical and functional expansion in offshore entities?*
> *(3) How do changes in the organizational architecture of a specialized subunit affect its capability development process? And,*
> *(4) How are the three questions above affected whether we consider a fully owned or an outsourced ownership mode?*

This is a Manuscript-Based (Article-Based) Thesis. This introductory chapter is followed by a second chapter containing a literature review and three chapters containing each of the article-based papers. It ends with a final conclusion chapter.

Chapter two takes a step back from this introduction to analyze the distinct bodies of literature that contribute to an understanding of the phenomenon of disaggregation in a firm's activities. In this chapter, I argue that while the extant literature provides a relatively broad understanding of the fine-slicing phenomenon, a fine-grained analysis is necessary for a better comprehension of the conditions surrounding the processes of the formation and evolution of fine-slicing, along with the organizational architecture changes that affect the development of capabilities.

In chapter three (*Designing business units: Scope decisions and their performance implications*), I examine how the geographical and functional scope of the offshoring arrangement affect business unit performance in fully owned and outsourced settings. By drawing on the resource based view and complexity theory, I identify four different impacts on activity performance: 1) geographical scope effects, which reduce profitability when dispersed activities are related; 2) functional scope effects, which increase profitability, the larger the number of functions in a given location; 3) structural complexity effects, which decrease profitability, the more intricate and larger the business unit becomes; and 4) ownership mode effects, which moderate geographical and functional linkages in outsourced subunits. Overall, I find weak support for geographical effects and strong support for functional, complexity and ownership mode effects. Moreover, this study suggests that fully owned settings benefit more from an initial establishment within the boundaries of a country, while outsourced settings are better suited to exploit resource advantages in multiple locations. My study suggests implications for organizations adopting globally distributed structures.

In chapter four (*Internationalization of a firm's upstream and support activities: Linking performance feedback and offshoring evolution*), I analyze how previous performance affects the patterns of future offshore internationalization. I combine the Internationalization Process Model with Performance Feedback Theory to explain the geographical and functional expansion of fully owned and outsourced offshoring. I suggest that while financial aspirations fulfillment affects geographical expansion, it is the achievement of operational aspirations that explains functional diversification within a country. Overall, I find support for the model, and argue that while the

ownership structure affects the interpretation of financial aspirations, operational aspirations offer consistent guidance under both fully owned and outsourced organizing modes.

In the fifth chapter (*Capability and organizational coevolution in offshoring*), I explore how changes in the offshoring organizational architecture affect capability evolution. The existing literature describes the role of organizational traits in capability creation, but a detailed account of how changes in a firm's architecture enable the development of capabilities has not yet been explored. Drawing on two in-depth case studies developed in the context of business service offshoring, this paper contributes to the literature on capability evolution in three ways. First, it theorizes that narrow scope roles and performance metrics are the fundamental channels used to guide capability emergence in the initial stage of offshoring; in both in-house and outsourced centers. Second, it suggests that incipient capability emergence creates a push for increases in functional integration with other firms' units, regardless of whether the firm adopts in-house or outsourced offshoring methodologies. Third, it theorizes that advanced stages of offshoring show a larger dispersion of organizational architecture tools in in-house or outsourced offshoring settings, as such tools are selected to tie the leveraging of already developed capabilities to support the firm at large. Table 1.1 presents a synthesis of the empirical papers included in this dissertation.

The sixth chapter presents the final conclusions and general contributions of this thesis. This chapter not only summarizes the findings and research questions that emerged from each of the empirical studies with regard to the fine-slicing phenomenon, but also details implications for managerial practice and implications for future research in the area.

Table 1.1: Outline of the empirical papers

	Chapter 3	Chapter 4	Chapter 5
Title	Designing business units: Scope decisions and their performance implications.	Internationalization in upstream and support activities: Linking Performance Feedback and Offshoring Evolution.	Capability and Organizational Co-evolution in Offshoring.
Research Question	*How does the initial geographical and functional scope affect the specialized subunit's performance?*	*How does the performance of current operations influence the geographic and functional expansion in offshore entities?*	*How do changes in the organizational architecture of a subunit affect its capability development process?*
Theoretical lenses	Resource based view and complexity theory.	Internationalization Process Theory and Performance Feedback.	Capabilities Literature and Attention Based View.
Methods	Quantitative analysis. Two methods: i) OLS and ii) Endogenous Switching Regression (MLE).	Quantitative analysis. : Two methods: i) Probit and ii) Heckman Probit Model.	Qualitative analysis: two in depth case studies.
Data	ORN Survey Data.	ORN Survey Data.	Two case studies (one collected by the ORN other collected with the support of Omar Toulan).
Key Findings	The initial geographical and functional scope affects the profitability of an offshoring initiative. Moreover, superior configurations for in-house and outsource offshoring initiatives are different.	Achieving profitability aspirations has an impact on the geographical expansion, whereas matching operational aspirations affects functional expansion within a country.	In house and outsource offshoring projects use similar design architectures in initial stages. Changes in design have clear effects on the capability emergence process.
Status of the Paper	Working Paper Nominated to "Most Promising Scholar" for AIB 2014 annual conference.	Received an R&R from JIBS. Also nominated to "Most Promising Scholar" for AIB 2014 annual conference.	Working paper (when thesis is completed, I will continue working with Omar on this).

1.2 Empirical context

1.2.1 Reasons to use offshoring to analyze the fine-slicing phenomenon

This dissertation uses the phenomenon of the offshoring of administrative and technical (A&T) activities to explore the process of disintegration and relocation of a firm's activities. There are several reasons to support this selection. First, each A&T offshoring decision can be seen as the result of balancing the potential gains of specialization that can be reaped by "fine-slicing" discrete pieces of the value chain in locations where comparative advantages exist, as well as the need to integrate business processes (Jensen, Larsen, & Pedersen, 2013). Second, specialization in A&T offshoring is enhanced by concentrating business tasks and processes (Manning et al., 2008; Srikanth & Puranam, 2011) in geographies that present cost advantages in performing those activities (Asmussen et al., 2007). Third, on top of the initial advantages perceived by the establishment of a separate subunit, additional gains in productivity are likely to emerge, given the more extensive division of labour (Maskell, Pedersen, Petersen, & Dick-Nielsen, 2007), as fine-sliced structures facilitate the focus of managerial attention on a reduced number of organizational routines and processes (Huckman & Zinner, 2008; Skinner, 1974). Fourth, the existence of a well-structured and detailed database containing A&T offshoring information (the Offshoring Research Network, or ORN) with data at the firm, project and location level provided me with an unmatched ability to perform the quantitative analyses and a qualitative exploration of the research questions proposed in this thesis.

1.2.2 Definition and historical context of A&T offshoring

A&T Offshoring refers to "the process of sourcing any business task, process, or function supporting domestic and global operations from abroad" (Manning et al., 2008, p. 35). In its strictest form, offshoring does not necessarily imply changes in a firm's boundaries. However, in many cases, what has been seen is a concurrent shift toward offshoring and outsourcing, in which a third party performs (in a foreign location) activities previously done at home by the parent firm (Athreye, 2005; Maskell et al., 2007). It is generally accepted that the most common driving force for relocating A&T operations abroad is to obtain lower operational costs (Erber & Sayed-Ahmed, 2005; Kedia & Mukherjee, 2009; Lewin & Peeters, 2006). An implication of

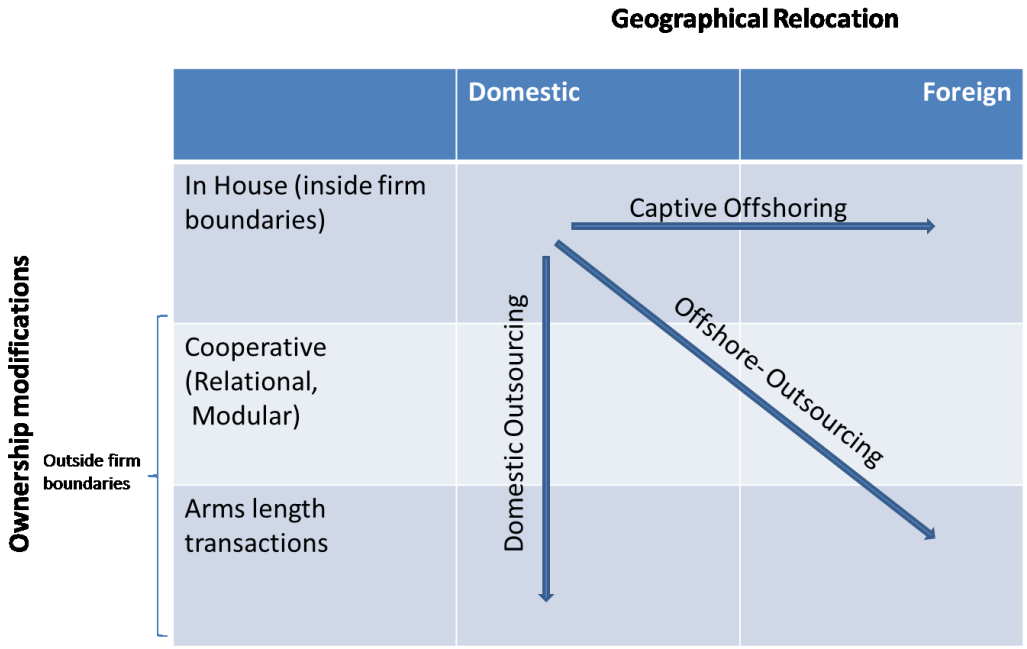
doing so, though, is an increase in the physical distance between the subunit providing the service and the ones receiving it (Manning et al., 2008), thus requiring significant changes in the task design and the coordination mechanisms across subunits (Kumar et al., 2009; Srikanth & Puranam, 2011).

Overall, the practice of offshoring initially emerged in manufacturing activities during the 1970s. The availability of productive skills, coupled with low transportation costs, drove up the transplantation of manufacturing activities in many East Asian countries characterized by low labour costs and incipient levels of institutional development. Early International Business (IB) theorists described the first wave of offshoring as a resource-seeking type of internationalization (Buckley & Casson, 1976; Dunning, 1980; Hymer, 1970) Since the late 1980s, environmental changes, such as economic liberalization and the rise of emerging country players (Kedia & Mukherjee, 2009), have paved the way for multinational corporations (MNCs) to invest in countries with the sole purpose of reconfiguring their value chain (Narula & Dunning, 2000) by achieving efficiencies and cost reduction in processes (particularly services) that are not critical to their business operation. Three factors characterized this second wave of offshoring: (i) the existence of high-wage differentials across locations for similar types of jobs; (ii) technological breakthroughs (i.e., the Internet) that increased the quality of communications while reducing its cost; and (iii) the increased homogenization of education systems, which allowed for the transfer of highly codified business processes (Ramamurti, 2004). The third wave of offshoring emerged with the increased incorporation of knowledge-based activities in the early 2000s. This wave has focused on more complex processes, which in many cases are closer to the core competencies of the corporation. Moreover, this wave has been driven by a need to develop certain skills via absorbing the knowledge available in specific locations previously considered as peripheral (Manning et al., 2008). There are different estimations of the A&T offshoring market size. While the less optimistic suggest annual revenues between US$250 billion (OECD, 2010) and US$280 billion (Boston Consulting Group, 2010), the more enthusiastic estimate the market as being between US$490 billion (KPMG/HfS, 2013) and US$595 billion (Deloitte, 2011).

Offshoring and outsourcing decisions are commonly intertwined (Hätönen, 2009; R. Mudambi & Venzin, 2010). Figure 1.1 illustrates the relation among them. From a theoretical standpoint,

changes in ownership and geographical relocation factors are useful in distinguishing and synthesizing relations between offshoring and outsourcing concepts. Changes in ownership imply modifications in the mechanisms, extent, and focus that an entity or group can reach to influence the behaviour and output of the other entity[1]. Geographical redistribution refers to the differences arising among operations as a result of the spatial separation among locations (particularly among sites that imply the crossing of country boundaries) [2] that are introduced, given language barriers, geographical and cultural distance (Dibbern et al., 2008).

Figure 1.1: Relevant dimensions to differentiate Offshoring and Outsourcing



Sources: Adapted from Miroudot et al., 2009; Contractor et al., 2009.

[1] Critics of this distinction suggest that it is inconsistent to use ownership as a proxy for levels of control (R. Mudambi & Venzin, 2010) however; as the topics of ownership and control do not represent a central part of the current thesis, I use that assumption to simplify the analysis.

[2] Although country boundaries were established to categorize the geographical dispersion between operations, the key drivers are hierarchical separation and environmental diversity, which may exist even within country borders.

1.2.3 Types of functions offshored

A&T Offshoring has expanded to incorporate multiple types of activities and business functions. Depending on the industry, some specific areas have been moved overseas, but more importantly, there are large groups of increasingly sophisticated activities in the areas of information technology, business processes, and knowledge processes that have been incorporated into the offshoring bandwagon. These three categories are described below:

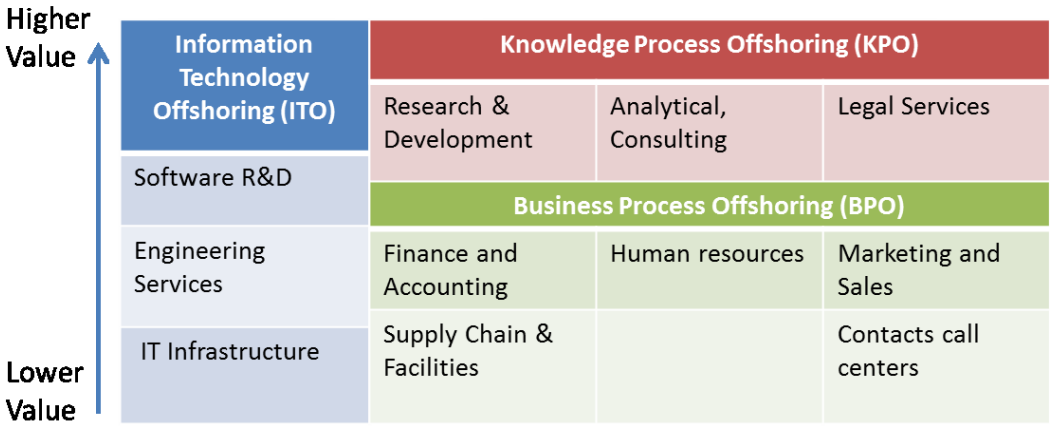
Information Technology Offshoring (ITO) includes activities related to the management of information technology. This segment has evolved from the initial steps of technical support and cheap code writing to the management of high-end projects, such as ERP project implementation and development; and lastly, it has evolved into the provision of R&D and consulting services (Gereffi & Fernandez-Stark, 2010). ITO is considered the most established and mature offshoring model available, as it contains the full spectrum of activities in the low-, medium- and high- value propositions, and in practice, its developments are used as a role model for Business Process Offshoring (BPO) and Knowledge Process Offshoring (KPO) activities (NASSCOM, 2011).

Business Process Offshoring (BPO) incorporates activities related to the support of standard business functions such as human resources management, finance accounting, supply chain logistics, and customer service management. The models of BPO have evolved to incorporate multiple geographies and intense specialization around certain functions (NASSCOM, 2011). BPO activities are normally considered in low and middle segments of complexity, as indicated by the type of human capital required to perform most of these activities (Gereffi & Fernandez-Stark, 2010).

Knowledge Process Offshoring (KPO) refers to the geographical relocation of high-valued functions to untraditional destinations. It incorporates "activities that directly involve the production of knowledge and innovation, and that involve some degree of firm-specific capabilities" (S. M. Mudambi & Tallman, 2010, p. 1436). Some authors suggest that KPO was formed to exploit untapped pools of talented labour, given the scarcity and supply of those skills in developed countries (Manning et al., 2008) or to arrange those skills in forms that are

unfeasible in developed contexts (Hagel & Brown, 2005). All of these changes have produced a newer concentration of skills around particular functions or services in certain locations around the world (Manning et al., 2008).

Figure 1.2: Technical and Administrative Activities included in the analysis



Source: Adapted from Gereffi and Fernandez-Stark, 2010.

1.2.4 Characteristics of the data used in this dissertation

Most of the empirical data used in this thesis have been collected by the Offshoring Research Network (ORN), an international group of academics under the leadership of Duke University. Since its inception in 2004, ORN has been collecting A&T offshoring data through yearly surveys[3], flash (short) surveys developed to gather information on specific topics, roundtables and other exchanges with industry experts, and in-depth case studies. Among ORN's collected data, Chapters 3 and 4 of this thesis rely primarily on the Corporate Client Survey, or CCS, which collects multilevel information about organizations adopting offshoring in terms of the company profile (size, headquarter locations), the activities included (e.g., IPO, KPO, BPO), the locations selected (e.g., the firm's perceptions about the locations, selection factors, risks

[3] ORN CCS and SSP are yearly voluntary surveys, in which respondents have been either self-selected or recruited by one of the 13 ORN teams around the world. Firms are invited each year to introduce information regarding changes on the status of their offshoring projects.

perceived) and details about the specific implementations (e.g., delivery models, launch year, performance outcomes). An additional source of information collected by ORN and used in Chapters 3 and 4 is the service provider survey, or SPS, which focuses on understanding the conditions of the supply side of offshoring. Finally, Chapter 5 uses an in-depth case collected by ORN that contains a detailed account of offshoring evolution in a large US firm.

Chapters 3 and 4 of this thesis use a dataset of the 231 firms included in the ORN CCS. This dataset provides rich contextual information at the firm, location and project level, which facilitates a thoughtful analysis and helps prevent biases from emerging due to omitted variables. In addition, this dataset offers significant heterogeneity with regard to firm industries, countries of origin and destination, types of projects developed, and years of implementation, all of which facilitate the generalizability of the findings. This section presents information regarding the firms, locations selected, and characteristics of the projects included in the sample.

Table 1.2 introduces the demographic characteristics of the firms included in this study. The dataset shows that most firms under analysis are headquartered in the US (59%), with another significant group headquartered in Western Europe (38%). The remaining five firms are located in Australia, Japan and India. With regard to industries, the firms of interest belong to multiple industries, where software and IT service firms comprise the largest (33%) segment, reflecting to some extent the fact that IT firms were early adopters in the offshoring of tasks, as is described by experts in the field (e.g. Athreye, 2005; Dossani & Kenney, 2007). Other industries strongly represented in the dataset are Financial Services, Manufacturing, and Professional Services. Regarding firm size, the dataset is split evenly between small, medium and large firms, which facilitates its generalizability to firms, irrespective of their size. Finally, the survey data include information from firms that began offshoring at different stages of practice development. This is a useful characteristic, as significant differences exist from the environmental conditions present in firms that adopted offshoring in the earlier stages (before 2003) and those that initiated the practice after the intertwined effects of process commoditization and the emergence of a strong supplier industry, which have been discussed in the literature (Davenport, 2005).

Table 1.2: Firm Demographics

Headquarters Location	*%*	*Industries*	*%*
United States	59.3	Aerospace	0.9
Netherlands	13.9	Arts, Entertainment and Recreation	0.9
Belgium	9.5	Automotive	1.7
Scandinavia	3.9	Construction	1.3
United Kingdom	3.9	Electronic Hardware and services	0.4
Spain	2.2	Financial Services and Insurance	16.5
Switzerland	1.7	Government	0.4
Australia	1.3	Healthcare and Pharma	5.6
Denmark	0.9	Manufacturing	12.1
France	0.9	Oil & Gas	0.4
India	0.9	Professional Services	11.7
Germany	0.4	Retail and Consumer Goods	3.5
Ireland	0.4	Software and IT services	33.3
Japan	0.4	Telecommunications	5.6
Norway	0.4	Transportation and Logistics	3.0
		Travel	0.9
		Utilities	0.9
		Wholesale	0.9
Firm Size(in number of employees)	*%*	*Period when the firm started offshoring*	*%*
Below 200	32.9	Before 2003	34.6
Between 201 and 10.000	32.9	After 2002 and before 2006	37.2
Above 10.000	34.2	After 2005	28.1

Source: Author's own computations, based on ORN data.

The 231 firms selected for analysis developed a total of 691 projects (346 of these projects refer to implementations executed during the first year in which a firm adopted offshoring initiatives, while the rest refer to follow-up implementations). From these projects, 47% were developed in-house, and 53% were outsourced. Projects were located in 57 countries in all of the populated continents. India emerges as the most relevant location, capturing 40% of the total implementations included in the dataset. With regard to activities, a good dispersion between ITO, BPO and KPO is included, with a relative dominance of low complex services, such as IT infrastructure and call center operations. Additional project-level information is presented in Table 1.3

Table 1.3: Distribution of Implementations by Function and Location[1]/

Business Functions	*%*	*N*	*Locations*	*%*	*N*
Call Centers	15%	104	India	41%	280
Engineering Services	10%	68	Latin America	10%	66
Finance and Accounting	11%	74	Eastern Europe	11%	77
Human Resources	3%	22	Rest of Asia	11%	79
IT Infrastructure	21%	146	Western Europe	12%	82
Analytical Services	3%	24	China	9%	62
Legal Services	1%	8	US	3%	24
Marketing and Sales	7%	45	Australia	1%	5
Product Design	4%	30	Africa	1%	10
Procurement	8%	53	Middle East	1%	6
R&D	5%	35			
Software Development	12%	82			
Total	100%	691	Total		691

[1/] Includes all projects reported by the firms under analysis. Chapters 3 and 4 include subsets of this information, as they focus on particular implementation rounds.
Source: Author's own computations, based on ORN data.

Finally, with regard to the ownership mode (also referred in the thesis as organization or entry mode), the distribution between in-house and outsourced implementations is rather balanced. Implementations that involved the use of a direct investment (FDI) by the firm adds up to 42.5%, whereas the use of outsourced projects represents the remaining 57.5%. Relatively few projects maintain intermediate arrangements in which the firm possesses partial ownership. In this thesis, as those projects involved a level of FDI by the focal firm, they are considered as in-house projects.

Table 1.4: Distribution by ownership mode [1/]

Ownership mode		*%*
In-house	Fully owned	38.16
	Partially owned (i.e. JV)	4.34
Outsourced		57.50
Total		*100%*

CHAPTER 2: LITERATURE REVIEW

2.1 Classic approaches regarding disaggregation among firm activities

I propose that an examination of the organizational processes underlying the fine-slicing in a firm's value chain must begin by revisiting what has been previously written about firm specialization. Specialization is one of the oldest topics explored in the management literature and it has attracted the attention of scholars since the classic writings of Adam Smith (1776). Classical examinations have centered on an analysis of the consequences of specialization at individual level and the benefits it provides to a firm's productivity (such as simplification, efficiency, and better workers' control). While little discussion exists today regarding the advantages of individual specialization, more debate remains with respect to the effects of specialization at more aggregated levels of analysis (Huckman & Zinner, 2008). The problem with the disaggregation of business activities is succinctly summarized in March and Simon's seminal work:

> *"[T]here is a problem of specialization among individual employees, and a problem of specialization among organizational units. There is no reason to suppose that both sets of problems have the same answers or that the same general principles apply to both"* (1958: 179).

The objective of March and Simon was to call attention to the additional complexities existing in the organizational context, where subunit specialization involves coping with higher coordination costs, issues of cooperation across teams, and the capabilities required to integrate dispersed locations (Grant, 1996; R. Gulati, Lawrence, & Puranam, 2005), as contrasted with the much simpler case of division of labour described in Smith's pin factory.

Specialization is a construct with diverse meanings in different areas of the management literature. The origins of these diverse conceptualizations may be rooted in the contributions of fields such as economics, sociology and even biology, as each discipline has added a distinctive perspective on subunit specialization. This additive characteristic has supported the establishment of at least three different understandings of specialization within organizations: Work Distribution, Differentiation, and Focus. The Work Distribution View is the closest to the

concept of division of labour described by Adam Smith. This view portrays specialization by focusing on the relation among the action of task separation and grouping and its effects on productivity (Dewar & Hage, 1978; Nadler, Tushman, & Nadler, 1997). The Differentiation View has been inspired by literature in biological evolution and centers its attention on the adaptation of organizational structures, functions, and behaviours to particular situations (Lawrence & Lorsch, 1967). Lastly, the Focus View considers specialization as a strategic decision as "a firm [or subunit] is able to serve its narrow strategic target more effectively or efficiently than competitors who are competing more broadly" (Porter, 1980, p. 38). Each approach places emphasis on different variables. Traditionally, the Work Distribution View places attention on the concepts of efficiency and productivity; the Differentiation View examines the adjustment of distinct subunits to exogenous conditions; and the Focus View analyzes the relations between scope and performance.

2.2 Characteristics of the classic approaches to activity disaggregation

The starting point for the Work Distribution approach is the "horizontal division of work between organizational units of one or more firms" (Sinha & Van de Ven, 2005, p. 390). This distribution implies the gathering of some processes or functions together, while pushing other activities apart, an action that has long-lasting effects not only on the coordination among agents, but also in structuring the information flows within the organization (Marschak & Radner, 1972; Nadler et al., 1997). In a nutshell, this approach seeks to compare the advantages of subunit specialization with the increased coordination costs that it creates for the organization. The economics discipline pioneered this perspective (Smith, 1776), which has centered on the following variables: economies of scale and scope, opportunity costs in the use of resources, and incentives on the creation of particular knowledge (G. S. Becker & Murphy, 1992; Dessein & Santos, 2006). However, economic approaches to organizational specialization have been criticized on the grounds that they use very simplified organizational structures (Greenwood & Miller, 2010; Marschak & Radner, 1972), and by virtue of the fact that these analyses fail to consider decision-makers' motivational and cognitive limitations (March & Simon, 1958; Siggelkow, 2011). Table 2.1 summarizes and compares the three classic perspectives on specialization.

Table 2.1: Perspectives Informing the Subunit Specialization Debate

Subunit Specialization as

Definition	*Theoretical roots*	*Related variables*	*Managerial implications*
… a work distribution problem			
Specialization as a problem of finding effective arrangements of labor and coordination of activity. It seeks to balance the advantages of increased division of labor with the coordinating difficulties among increasingly specialized actors.	Economics (general); Organization design literature (Org. level)	The level of specialization depends not only on organizational size (i.e., scale and efficiency factors), but also on coordination costs (Marschak & Radner, 1972) and the level of knowledge that exist in certain areas (Becker & Murphy, 1992).	This view portraits specialization as a static phenomenon that should be managed at certain critical times in the firm's operation.
… a differentiation problem			
Specialization occurs as subsystems in organizations differentiate their structures, functions and behaviors from one another to adapt to the particular subenvironments where they interact (Lawrence & Lorsch, 1967).	Organization Theory	Integration (cooperation and coordination) (Gulati et al., 2005); Interdependencies (Kumar et al., 2009); Complexity (Simon, 1962).	Managers must interpret and react to the environmental changes in order to balance subunit differentiation with the firm's wide orchestration activities.
…a focus problem			
Specialization from a focus perspective suggests that "a firm [or subunit] is able to serve its narrow strategic target more effectively or efficiently than competitors who are competing more broadly" (Porter, 1980: 38).	Strategic Management	Selection of product mix or activity scope, number of routines and goals on the subunit (Skinner, 1974); uncertainty, development of specialized expertise (Clark & Huckmann, 2011).	This view recognizes managerial proactivity on the shaping of firm's operations. However it does not provide insights on how strategic choice can influence a firm's long-term actions.

Source: Author's compilation.

The Differentiation View suggests that specialization occurs as organizational subunits adjust their structures, functions, and behaviours to meet the requirements of their local environment (Dessein & Santos, 2006; R. Gulati et al., 2005; Lawrence & Lorsch, 1967). Differentiation facilitates the adaptation to the immediate subunit's environment, but increases difficulties in orchestrating efforts at the firm level (March & Simon, 1958; Rivkin & Siggelkow, 2003). The main research concern in this perspective is the analysis of subunit interdependencies (Kumar et al., 2009; A. H. Van de Ven, Delbecq, & Koening, 1976), the coordination and collaboration of the difficulties they create (e.g. Daub, 2009; R. Gulati et al., 2005), and the existing mechanisms that facilitate integration (e.g. Ghoshal & Nohria, 1989; Srikanth & Puranam, 2011). Differentiation arguments focus on variables such as interdependencies (Siggelkow & Rivkin, 2009; Thompson, 1967), coordination costs (Dessein & Santos, 2006), and the level of integration (Lawrence & Lorsch, 1967; Pablo, 1994) among units or processes. Given its theoretical roots, analyses of specialization under the differentiation approach are depicted as an adaptive response that occurs while organizational units adjust to their local environmental conditions. Once the adjustment is complete, only external influences (i.e., that affect the level of specialization) may restart an adaptive reaction.

The Focus Perspective sees specialization as a managerial decision. It maintains that a subunit contributes more to a firm's productivity when its resources are concentrated on the attainment of a narrow set of goals (Porter, 1980; Skinner, 1974). By focusing on fewer targets (strategy), the subunit can select a specific configuration (structure) that better suits the fulfillment of the firm's goals. This view recognizes that subunit specialization can be clustered around dimensions such as products, processes, geographies, and customers (Huckman & Zinner, 2008; Johnston, 1996). Most of the research in this stream seeks to analyze the relationships between subunit specialization and performance (e.g. Bozarth & Edwards, 1997; Brush & Karnani, 1996; Clark & Huckman, 2011; Ketokivi & Jokinen, 2006). The focal argument is also consistent with the strategy choice literature (Child, 1972), as it recognizes agency in the selection of subunit targets. The core of this view gravitates around the impact that narrow goals and

a few routines have on the subunit and firm's performance. Unfortunately, this approach offers no theoretical illustration of how the focusing process unfolds. As a result, this framing of subunit specialization recognizes managerial proactivity, but falls short of describing how this may affect the firm's long-term actions.

2.3 Why are traditional views of specialization inadequate to study fine-slicing?

In contrast with these theoretical perspectives on specialization, the process of fine-slicing a firm's value chain refers to the phenomenon by which firms centralize individual activities in locations where comparative advantages to perform those operations exist (Asmussen et al., 2007; Beugelsdijk et al., 2009). This phenomenon can be characterized by a disintegration-relocation-reintegration process (Jensen et al., 2013) in which the scale and scope of functions being accommodated in foreign locations is constantly changing. In fact, what is appreciated in empirical research is that fine-sliced activities do not start as full-fledged centers, but rather as exploratory sites where the initially allocated tasks are performed on an ad-hoc basis (Carmel & Agarwal, 2002). The tasks allocated to these faraway centers are later modified, given the learning and external conditions (Galunic & Eisenhardt, 1996; Maskell et al., 2007). This concentration around a narrow range of activities facilitates the process by which "geographical units specialize and become global suppliers of different activities within the internal network of the MNC"(Asmussen et al., 2007, p. 792), and the path followed is a sequential learning process that facilitates the incorporation of additional activities originally not considered at the exploratory stage (Lewin & Peeters, 2006).

From a macro perspective, the fine-slicing process can be traced to three "coevolutionary" trends: i) emergent locations that compete for particular types of foreign direct investment, or FDI (Farrell, 2005); ii) firms that reconfigure their operations by focusing on their core competencies (Prahalad & Hamel, 1990) while outsourcing areas that are considered as unessential for the firm (Gospel & Sako, 2010); and iii) increased familiarity with geographically distributed configurations that facilitate

the unbundling and offshoring of increasingly complex activities (Manning et al., 2008; Maskell et al., 2007).

The first trend is related with increased competition among global locations for the development of a particular production or business process. This emergence has resulted from a combination of three factors: technological changes that have made faraway interactions much more efficient and cheaper; large processes of economic liberalization; and significant factor cost differences among developed and emerging economies (Ramamurti, 2004). Technological breakthroughs, such as the lowering of digitalization and communication costs, have been instrumental in facilitating the distribution of firm capabilities with resources in specific locations (Rugman, Verbeke, & Yuan, 2011).

The second trend is that large firms and MNCs, previously highly integrated in the different parts of the product value chain, are continuously reshaping their structures by centering on factors or competencies that businesses consider as fundamental for the generation of distinctive value (Hamel & Prahalad, 1990) [4]. This process has unleashed the selection of certain key activities, such as the control of markets for end products or their R&D, while outsourcing the ones not considered as fundamental in the firm's business model; or offshoring others that do not necessarily need to be located close to the firm's decision-makers (Gereffi, Humphrey, & Sturgeon, 2005).

The third trend is occurring at the subunit level, and refers to the adaptation and learning that unfolds as the specialized operations evolve. As described by Maskell et al. (2007, p. 239), "experience lessens the cognitive limitations of decision-makers as to the advantages that can be achieved," referring to the progressive learning that occurs inside

[4] While this second trend can be considered as a direct application of the Focus Perspective described earlier, this literature has largely ignored the effects that arise in the ecosystem as a direct consequence of these changes. For instance, the external development of metrics, standards, and the increased commoditization of activities (Davenport, 2005) are significant effects that are excluded in the traditional analyses of focus.

the new structures toward new activities and forms of governance. At the same time, empirical analysis suggests stage models describing how organizations increasingly develop strategies to fine-slice sections of businesses moving from pure efficiency (lower cost) to the use of proactive strategies focused on creating new sources of competitive advantage (Carmel & Agarwal, 2002; Manning et al., 2008). Significantly, these trends show that new models are incrementally pushing the frontiers by means of additional specialization and information standardization (Jacobides, 2005).

A careful evaluation of these trends suggests significant contrasts between the theoretical description of specialization and the different aspects underlining the phenomenon of fine-slicing. Consistent with the Focus and Work Distribution approaches, disaggregation of a firm's value chain originates from a proactive managerial decision to relocate activities based on some criteria, which are expected to have a positive effect on the firm's overall performance (Kedia & Mukherjee, 2009). At the same time, the phenomenon creates additional complexities in terms of firm coordination and reconfiguration (Larsen et al., 2013; Porter, 1986). However, fine-slicing presents characteristics that are not well modeled by existing approaches, particularly with regard to its constantly moving nature. Empirical analyses suggest that the combined effect of shifting comparative advantages between geographies (Farrell, 2005); shifting attention regarding processes that are considered as core or non-core (Gospel & Sako, 2010); and learning from previous reconfiguration decisions (Manning et al., 2008; Maskell et al., 2007) maintain the wave of fine-slicing. In fact, this self-motivated path to unbundle firm activities has inspired practitioners to refer to fine-slicing as "dynamic specialization" (Hagel & Brown, 2005).

In general, this review of the specialization literature shows that theoretical understanding with respect to the phenomenon of specialization is governed by the logic of comparative statics (i.e., the level of specialization responds to exogenous variables that rarely change), which is inappropriate in dynamic contexts, where many impetuses to deepen fine-slicing originate from within a firm. Significantly, some of the existing

understanding has become obsolete, as technological innovations and globalization trends foster the processes of specialization. I argue that new perspectives to capture this reality are necessary, as organizations must understand alternative evolutionary paths of the subunit, and how these paths may differ from the initial decision to disaggregate a value chain's activities.

2.4 Additional bodies of literature analyzing reconfiguration of value chain activities and specialization

Literature on transaction cost economics and vertical scope: Closely related to the phenomena of subunit specialization, the literature on transaction cost economics (TCE) analyzes the relative efficiency of vertical integration (hierarchies) to organize economic activity vs using arm-lengths relations (Williamson, 1985). The basic argument sustains that hierarchies are efficient mechanisms of organizing economic activity when the costs of creating transactions inside firms are lower than performing them in markets (Coase, 1937). Vertical integration is then dependent on three variables that characterize any transaction: frequency, uncertainty and asset specificity (Williamson, 1985) and defines the most suitable alternative to organize economic activity.

However, there are some problems in applying TCE frameworks to analyze the dynamics of subunit specialization. As described in the previous section, the subunit specialization phenomenon emerges as firms decide to disaggregate business processes into its constituting activities, in order to allocate those individual activities as organizational and economically feasible, which in many cases suggests the creation of patterns of labor division that are non-available in the market. Instead, TCE is built upon *"the presumption that in the beginning, there were markets"* (Williamson, 1985, p. 87), which implies that markets exist, and this is the basic tenet behind the firm's choice to buy or make (Jacobides, 2005). This is problematic, as it implies that TCE mechanisms are unable by themselves to describe how the specialization phenomenon unfolds, offering little insights on the evolutionary process by which the structure of the firm changes, particularly when intermediate markets to supply fine sliced activities do not exist.

An attempt to analyze the specialization process in greater detail by adopting TCE underpinnings is adopted by the literature on vertical scope (N. Argyres & Bigelow, 2010; Holcomb & Hitt, 2007; Jacobides & Winter, 2005; Kapoor, 2013). This literature uses insights from the capabilities literature to describe how the heterogeneity on capability distribution dynamically affects the vertical scope. The process unfolds as the existence of differences between firm's capabilities and the processes of specialization produces changes in the transaction costs that in turn affect the industry evolution (Jacobides & Winter, 2005). Although the processes of vertical disintegration at industry level are not completely symmetrical to processes of subunit specialization, they share characteristics such as changes in the scope of attention, increased searches for scale advantages, and the adjustment of structures to fit environmental contingencies. Historical studies describe the changes in scale and scope among firms and the underlying paths of integration or disintegration that occur as firms develop.

The vertical scope literature contributes to the analysis of the fine-slicing of a firm's activities by showing that disintegration-relocation and integration processes cannot merely be described as flipped sides of a coin, since each process is idiosyncratic in nature. Instead, integration processes refer to factors such as geographical and product expansion to make a better use of existing assets, the use of specialized managerial resources to focus on strategic rather than tactical decisions, and the development of structural changes to facilitate responses to increasingly complex activities (Chandler, 1962). Regarding disintegration processes, Jacobides (2005) describes how potential gains in specialization and trade are obtained in activities where standardization and modularization processes have facilitated market emergence. However, these historical accounts do not address two characteristics of the process that interests us: i) they focus on issues relative to the definition of firm boundaries, not on disintegration issues occurring within the firm; and ii) they do not analyze the geographical component that is intrinsic to the subunit specialization phenomenon, in particular when discussing offshoring.

Patch and recombination literature: A second approach relevant to the analysis of fine-slicing of a firm's activities is the literature on subunit evolution, also known as patch and recombination literature (Birkinshaw & Hood, 1998; Cantwell & Mudambi, 2005; Galunic & Eisenhardt, 1996), which presents a promising approach to better understand the specialization processes occurring inside organizational boundaries. This stream of literature suggests that processes of charter modification (affecting the subunit scale or scope) arise as a consequence of environmental, firm-level, and subunit-level variables (Birkinshaw & Hood, 1998; Burgelman, 1983). Moreover, this approach suggests that responsibilities assigned to subunits are constantly adjusted to reflect the accumulation or depletion of capabilities, internal competition, and external influences (Bouquet & Birkinshaw, 2008; Galunic & Eisenhardt, 2001).

The patch and recombination argument presents significant implications for the analysis of specialization processes. By modeling scale and scope decisions not as the outcome of a one-time design, but continuous adjustment among subunits (Galunic & Eisenhardt, 1996), this argument suggests that attention must be placed on the mechanisms by which the process occurs and the underlying conditions that facilitate a particular trajectory. This literature centers on processes of adaptation and internal selection, but omits unattended processes of external selection originating outside of a firm's boundaries. Hence, this approach fails to consider selection mechanisms to describe the forces of standardization, modularization, and commoditization processes that have greatly impacted decisions regarding the process of fine-slicing (Davenport, 2005; Gereffi et al., 2005; Jacobides, 2005). It also lacks an evaluation of the characteristics concerning global scope, the elimination of duplicities, and narrow scope (Asmussen et al., 2007; Beugelsdijk et al., 2009) that are present in the fine-slicing phenomenon.

2.5 Gaps in the current literature

This literature review has presented different theoretical approaches informing the organizational process of underlying the phenomenon of "fine-slicing" of firm activities.

These bodies of literature have offered a number of insights to illuminate subsequent research on the conditions surrounding the process of geographical and organizational disaggregation of firm activities. However, they also suggest that important lacunae exist in the process of identifying key dimensions and superior configurations of such fine-slices.

To provide further understanding in the process of finding superior configurations in the fine- slicing of a firm's value chain, this thesis proposes to focus on the "specialized subunit," which is the resulting entity after the fine-slicing decision has been made. I analyze three dimensions of the specialized subunit: i) its geographical scope, which refers to the number of distinct geographical locations in which the activities have been established; ii) its functional scope, which refers to the number of distinct activities performed by a given subunit in a particular location; and iii) its ownership structure, which in this thesis, is simplified to consider fully owned and outsourced disaggregation choices.

As this literature review has clearly pointed out, disaggregation is a process that cannot be understood by merely focusing on initial scope decisions. At the same time, the initial decisions are significantly important with respect to configuring subsequent choices (Sydow, Schreyögg, & Koch, 2009). Hence, this thesis seeks to increase our current understanding of three fundamental topics on fine-slicing. The first topic involves initial formation decisions; this process seeks to understand the impact of alternative initial designs on the specialized subunit's performance. Here, the specific focus centers on how the geographical and functional scope affects profitability in the specialized subunit, and the impact that alternative ownership (i.e., fully owned or outsourced) modes have on the relationship. Secondly, the evolution process explores how different elements affect the trajectories of development involving specialized subunits. In this regard, the analysis focuses on how the operational and financial performance of existing operations affects the geographical and functional expansion trajectories in specialized subunits, and whether changes in the ownership mode creates differences in the expansion trajectories.

Third, this thesis seeks to explore additional effects of organizational architecture on fine-slicing processes, particularly speaking, insofar as specialization processes are likely to present far-reaching effects in the way firms operate. Here, the goal is to understand which changes in the organizational architecture impact the capability development process in a specialized subunit, under fully owned and outsourced ownership modes.

The following chapters are oriented to explore each of these topics in detail. Chapter three examines formation conditions by evaluating the functional and geographical scope effects on subunit performance. Chapter four will focus on evolution and the effects of existing operations' performance toward future expansion in functions or geographical locations. Chapter five will deal with the issue of architectural changes and their impact on the capability development process. Chapter six summarizes the contributions of this thesis and their managerial implications.

CHAPTER 3: DESIGNING BUSINESS UNITS: SCOPE DECISIONS AND THEIR PERFORMANCE IMPLICATIONS

3.1 Abstract

This study analyzes how geographic and functional scope affect business unit performance in fully owned and outsourced settings. By drawing on the literatures of resource based view and complexity, I identify four different impacts on activity performance: 1) geographic scope effects, which reduce profitability when dispersed activities are related; 2) functional scope effects, which increase profitability, the larger the number of functions in a given location; 3) structural complexity effects, which decrease profitability, the more intricate and larger the business unit becomes; and 4) ownership mode effects, which moderate geographic and functional linkages on outsourced business units. I tested these interrelations using a dataset of offshoring projects performed between 1995 and 2012. Overall, I find weak support for geographic effects and strong support for functional, complexity and ownership mode effects. Moreover, this study suggests that fully owned settings benefit more from an initial establishment within the boundaries of a country, while outsourced settings are better suited to exploit resource advantages in multiple locations. My study suggests implications for organizations adopting globally distributed structures.

3.2 Introduction

How does the fine slicing of a firm's activities affect performance? This is a highly relevant question, as the organization of a firm's activities increases in complexity, by distributing value-adding functions among multiple locations and governance alternatives (Beugelsdijk et al., 2009; Gereffi et al., 2005; Manning et al., 2008; UNCTAD, 2013). Fine slicing refers to the "*disaggregation of the firm's value chain into as many constituent pieces as organizationally and economically feasible followed by decisions on how each slice should be allocated geographically ('offshoring') and organizationally ('outsourcing')*" (Contractor et al., 2010, p. 1417). The rationale behind "fine slicing" is

that it permits the more precise use of location and ownership advantages (Antras & Helpman, 2004; Buckley & Ghauri, 2004), access to specialization gains (Asmussen et al., 2007; Beugelsdijk et al., 2009) and a focus on core competencies (Hagel & Singer, 1999; Kedia & Mukherjee, 2009). While a large body of literature has been developed to analyze the antecedents, features, and organizational implications of the global reallocation of operations (see Hätönen & Eriksson, 2009; Schmeisser, 2013 for reviews), a fine-grained understanding of an organization's design features in globally distributed settings remains elusive (Jensen et al., 2013; D. Miller, Greenwood, & Prakash, 2009). In particular, effects such as the incorporation of multiple legal entities (R. Gulati, Puranam, & Tushman, 2012) or increased complexity (Larsen et al., 2013) on activity performance remain unexplored. This paper seeks to increase our understanding of the effects that one of the central variables in organization design (scope) has on activity performance. Specifically, I analyze how the subunit initial's scope (geographic and functional breadth) affects the performance of the activities involved, under fully owned and outsourced offshoring modes.

I focus on the initial establishment because this is a critical stage in the fine-slicing process. It is then when an organization possess the highest range of managerial discretion and prior to when initial experiences are likely to become self-reinforcing dynamics (Sydow et al., 2009). In this paper, I draw on complexity theory (P. Anderson, 1999; Levinthal, 1997; Simon, 1962) and the resource-based view on firm diversification (Markides & Williamson, 1994; Wernerfelt & Montgomery, 1988) to examine issues related to the determination of the functional and geographic scope in the subunit's establishment. My argument is that fine slicing and activity re-bundling produce three different impacts on performance: 1) geographic scope effects, which suggest that lower profits are achieved when dispersed activities belong to the same business process or knowledge base, but do not affect profits if geographical dispersion involves the dispersed activities use belong to different processes or rely on knowledge bases; 2) functional scope effects, which positively affect profits, the more the activities are co-located; and 3) structural complexity effects, which negatively affect financial

performance when the size of the subunit, or its functional or geographical scope increases. These three impacts are significant, as they illuminate the performance implications that particular combinations of geographies, functions, and organizing modes have in the design of globally distributed architectures.

Previous analyses in both the Strategic Management and International Business Literatures have long explored - at a firm level - the effects of product or geographic scope on performance (e.g. Cardinal, Miller, & Palich, 2011; Hitt, Hoskisson, & Kim, 1997; Lu & Beamish, 2004). While this literature has tested empirical relationships among concepts such as coordination costs and interdependencies, these analyses have often been criticized on theoretical and methodological grounds for their reliance on highly aggregated data and lack of attention to self-selection mechanisms among diversifying firms (Campa & Kedia, 2002; J.-F. Hennart, 2011; Villalonga, 2004).

To understand the scope effects on activity performance and avoid the methodological issues described in the previous paragraph, I analyze the initial experiences of 231 firms that offshored their administrative and technical (A&T) support activities between 1995 and 2012. This information was collected by the Offshoring Research Network (ORN), led by Duke University. The practice of A&T offshoring has been chosen as the context of analysis, since it integrates key organizational challenges and reactions to topics of globalization, ownership and specialization (D. Miller et al., 2009) in a context where activities are relatively standard across firms and industries (Srikanth & Puranam, 2011). At the same time, the ORN dataset offers fine-grained information to identify the effects of structural complexity and complementarities, such as the different countries of operation, different degrees of interrelation among functions allocated, number of employees' offshored, and savings achieved by a given implementation. Similarly, the dataset used offers indicators to rule out endogeneity concerns, such as an impartial evaluation of task characteristics, and specific drivers leading to the implementation of a particular function. A particular strength of this dataset is that it encompasses most stages in the evolution of offshoring practices, from pioneer projects to bandwagon

projects initiated when the practice had been standardized and commoditized (Davenport, 2005; Dossani & Kenney, 2007).

My findings contribute to the literature on organization design and scope. Specifically, this paper increases our understanding of the effects that subunit scope elements – functions and geographies – have on business unit performance, and brings to the fore the moderating role that ownership structures have on enhancing or preventing those effects. With this approach, I identify three different effects of scope: complexity, co-location, and complementarities that previous studies have described as S- or U-shaped effects of scope in performance, but without individually measuring them at the appropriate level (J.-F. Hennart, 2011). This is relevant, as it responds to recent calls for investigation among the causal relations between organizational arrangements and performance (Jensen et al., 2013; D. Miller et al., 2009). Overall, these insights are significant for the Organization Design literature, as the linkages between structure and performance have proven to be elusive in the empirical literature, and the quantitative arena is populated with limited studies and ambiguous results (Colombo & Delmastro, 2008; Siggelkow & Rivkin, 2009).

3.3 Literature Review

Fine-slicing decisions play a highly significant role on value chain reconfiguration, as firms can increasingly configure their operations to benefit from larger activity fragmentation and specialization (Gereffi et al., 2005), while creating a more complex organizational system (Zhou, 2013). The dual nature of the fine-slicing issue suggests that the analysis of scope decisions must incorporate simultaneous attention to both, the effects emerging at the level of the organizational system, and those arising from particular interactions occurring among individual activities. Complexity addresses the organizational characteristic of "*being composed from many, usually interrelated parts*" (Fredrickson, 1986, p. 283). At the organizational system level, complexity theory provides an analytical framework that allows an understanding of aggregated influence that combinations of attributes have on an organization's development path (Levinthal,

1997). In a nutshell, the complexity literature suggests that increased differentiation within an organizational system produces higher levels of complexity, thus affecting the organization's capability to coordinate, monitor, and control project profitability (Ethiraj & Levinthal, 2004; Larsen et al., 2013). Moreover, complexity theory suggests that it is not the increase of a single dimension (such as the number of geographies or functions) limiting the organization's ability to coordinate and control, but rather the interactions existing among elements (Ethiraj & Levinthal, 2009; Simon, 1962).

A key component of the complexity argument is the concept of interdependence, which refers to *"the extent to which a unit's outcomes are controlled directly by or are contingent upon the actions of another unit"* (Victor & Blackburn, 1987, p. 490). The interdependence among subsystems creates additional difficulties at different levels in the organization, as do the creation of common understandings (Grant, 1996), the alignment of interest and actions among subsystems (R. Gulati et al., 2005), the velocity of organizational adaptation (Sorenson, 2003), and the creation of appropriate systems to analyze and monitor individuals' contributions to the process (Jones & Hill, 1988). All together, the complexity lens suggests general- and subsystem-level challenges emerging with fine-slicing, not only because the interrelations among the system's elements make it difficult to interpret the aggregate effects that even minor changes can have in the overall organization (P. Anderson, 1999; Simon, 1962), but also because there is higher global effort involved in the orchestration of activities (Zhou, 2013).

The resource-based view of diversification (Levinthal & Wu, 2010; Markides & Williamson, 1994; Wernerfelt & Montgomery, 1988) provides alternative lenses to explore the issue of fine slicing and activity allocation, as it draws attention to the distribution of resources linked with particular activities. In its core, this view centers on the analysis of profitability differences among related and unrelated diversification patterns. It suggests that a resource developed in a given setting can be leveraged with higher returns in settings that are closer to its original context rather than in more distant applications (Levinthal & Wu, 2010). In conditions where this resource is "underutilized"

(Penrose, 1959), firms are likely to increase the scope of their activities, as full utilization of the resource may increase their total profit (Levinthal & Wu, 2010). Resource diversification advantages can emerge from two sources: i) advantages emerging from mere activity pooling, in which efficiencies arise from increasing the usage of specialized and indivisible assets (Penrose, 1959; Teece, 1980); and ii) those that can be reaped from exploiting resource complementarity advantages (Wernerfelt & Montgomery, 1988), which describe the condition where a combination among resources creates superior value relative to that granted by each resource individually (Adegbesan, 2009).

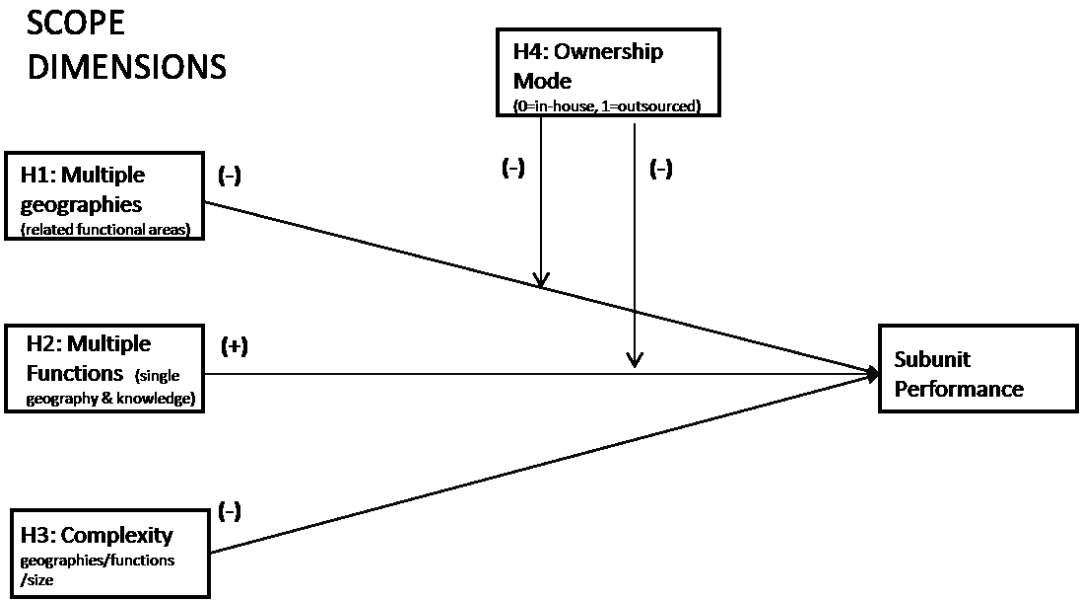
An extension of the diversification argument has been applied to multinational scope decisions, seeking to evaluate the conditions under which transnational expansion is beneficial to firms (Contractor, Kundu, & Hsu, 2002). This literature weighs advantages such as expanded scale and scope benefits (Caves, 1996), risk reduction (Kim, Hwang, & Burgers, 1993), and internalization advantages (Buckley & Casson, 1976) against the liability of foreignness (Zaheer, 1995), coordination difficulties (Denis, Denis, & Yost, 2002), and learning costs (Vermeulen & Barkema, 2002). Among the contributions of this literature, international diversification scholars have identified an S-shaped relation between the degree of multinationality and performance. However, as described in the introductory section, these analyses have been performed at a macro level, which affects their ability to methodologically incorporate a detailed view of the alternative impacts created by the relationships between scope and performance, and to analyze this relation under alternative organizing modes.

3.4 Theoretical Development

The perspectives evaluated in the previous section suggest that geographical and functional scope decisions must integrate structural complexity effects with the resource complementarities and economies of scope effects described in the literature review. I use these insights as the departure point of this theory-building section. Figure 3.1 presents the conceptual framework of this study. It delineates the effects that the

different scope dimensions have on business unit performance and the moderation role that is expected from changes in the ownership mode.

Figure 3.1: Conceptual Framework



3.4.1 Geographic Scope and Performance

A useful starting point to outline a theory on how fine slicing and activity allocation impact performance is by evaluating the effects that an increased geographical scope has on interdependencies and resource allocation paths. On the side of interdependencies among activities, I begin by considering the effects that spatial dispersion has on the coordination costs of activities in operations with different levels of interdependency. These coordination costs respond to efforts involved in "*decomposing tasks among partners along with ongoing coordination of activities to be completed jointly or individually across organizational boundaries and the related extent of communication and decisions that would be necessary"*(R. Gulati & Singh, 1998, p. 782).

I argue that in general, patterns of geographical diversification involving operations in the same business process or knowledge base are more likely to show performance reductions than those involving operations drawing from different knowledge bases. Activities within the same business process or knowledge base are likely to be homogeneous in attributes such as goals, degree of structure, and time orientation, all of which make consolidated management efficient (R. Gulati et al., 2005; Lawrence & Lorsch, 1967). The current literature on the global distribution of services argues that physical separation increases difficulties in maintaining a cohesive team, the generation of collective knowledge, and the maintenance of formal and informal channels to reduce misalignments between sites (Metiu, 2006; O'Leary & Mortensen, 2010; Sinha & Van de Ven, 2005). For managers, distance increases costs to manage and monitor activities (Kumar et al., 2009), as well as expenses related with the administration of multiple rules and regulations (Lu & Beamish, 2004). While friction created by imposing geographical separation can be handled with additional coordination mechanisms, the existence of higher interdependence levels requires the establishment of formal mechanisms and roles (Galbraith, 1995), the establishment of effort- intensive procedures to standardize performance (Jones & Hill, 1988), and the reconfiguration and modularization of tasks to facilitate distant interaction (Srikanth & Puranam, 2011).

On the resource side, the effects of geographical dispersion are more nuanced, as they depend on two conditions: first, the degree to which the resources (or services they provide) are bounded, and second, the time it takes to spread resources among locations (Vermeulen & Barkema, 2002). While in some cases, synergies can be exploited across sites due to the use of proprietary know-how or through the use of (indivisible) specialized resources, in many others, the effect of economies of scope is tied to a given location. Hence, pooling activities in a single location is more likely to generate positive synergies than if the same activities were geographically dispersed. The question of activity distribution is then, under which conditions are the benefits of finding an "ideal" location for an individual activity likely to be compensated by pooling activities in a single location? The argument of diversification based on resources suggests that the

answer depends on the resource fungibility and the distance of the context from where the resource will be leveraged (e.g. Levinthal & Wu, 2010; Wernerfelt & Montgomery, 1988). While resource fungibility is intrinsic to each case, this logic suggests that activity dispersion pooling is likely to reduce performance when activities are related. In particular, I suggest that activities sharing the same knowledge base (i.e., organized around an area of knowledge such as a profession or a production process) are more susceptible to spatial dispersion than activities relying on different bodies of knowledge. Hence, I argue that geographical diversification within a given knowledge base is likely to decrease subunit performance, whereas geographical dispersion in unrelated areas would have these co-location benefits compensated by the Ricardian advantages granted by a superiorly fitted location. Hypothesis 1 is stated as follows:

> *Hypothesis 1:* In its initial establishment, the presence of geographical dispersion reduces subunit performance.

3.4.2 Functional Scope and Performance

The second area of analysis refers to the short-run effects of functional scope on a subunit's performance. At the firm level, the issue of activity bundling has been studied from the perspectives of outcomes or products (e.g. Hagel & Singer, 1999), resources or capabilities (e.g. Prahalad & Hamel, 1990) and managerial mindsets and tools (Prahalad & Bettis, 1986). Common to these perspectives is the interest of adopting scope decisions that enhance a firm's competitive position. A similar goal is expected with fine slicing and activity allocation, in which a firm must weigh, on one side, the challenge of achieving optimal locations for its individual activities, and on the other, the ability to obtain complementarities among the resources it can mobilize. Moreover, the definition of a subunit's functional scope refers to the challenge of balancing the benefits a subunit obtains by establishing separate structures that enhance the development of "*different knowledge bases or requisite managerial styles and incentive structures"* (Jacobides, 2005, p. 477), while exploiting the synergistic benefits of grouping activities together (Levinthal & Wu, 2010; Teece, 1982) and maintaining consistency with the firm's goals.

The dual challenge described in the previous paragraph suggests that as firms may see advantages for segregating a group of functions, they will also obtain benefits from initially pooling together activities within a single geography. As pointed out in Simon's seminal contribution, "*Hierarchy systems are usually composed of only a few different kinds of subsystems, in various combinations of arrangements*" (Simon, 1962, p. 478). In the current case, I argue that the tasks comprising a business function, particularly those involving processes that are not core to the function involved, are not created entirely from scratch. Instead, they are built by first considering alternatives and solutions found in related areas. This means that many tasks integrating functions are not particularly singular; rather, they share significant commonalities with other activities and will, in general, benefit from aggregating closely related functions within the same subunit. Hypothesis 2 summarizes the reasoning as follows:

> *Hypothesis 2:* In its initial establishment, the larger the functional scope is (within a given country and a knowledge base), the greater the subunit's performance.

3.4.3 Structural Complexity and Performance

The third area of analysis refers to the organization-level effects of fine slicing. The argument follows the framing of complexity theory. Basically, the process of fine slicing implies the creation of individual subsystems to perform particular processes or functions. In order to achieve their full potential, each of these subsystems must develop distinctive attributes, thus allowing them to respond efficiently to the demands of their respective environments (Lawrence & Lorsch, 1967). When the processes are linked within the organizational system, the specialization occurring in individual subsystems is likely to increase the demand for coordination between them (Zhou, 2013). Hall (1996) identifies three dimensions of structural complexity: one referring to the number of knowledge bases involved, the second describing the number of layers or administrative structures required to manage the subunit, and the third concerning the geographical dispersion among activities.

Following complexity arguments, and more specifically, the components of structural complexity outlined by Hall (1996), I argue that the combined effect of using multiple knowledge bases, geographies, or a larger subunit size creates a negative effect on the subunit's performance. A larger number of knowledge bases reduces the level of attention that can be devoted by managers to individual activities (Ocasio, 1997) and at the same time implies that the coordination is more costly as it requires the orchestration of multiple knowledge bases which are likely to be more differentiated(Lawrence & Lorsch, 1967), this is significantly different than the case of functional scope within a knowledge base, as sharing resources (e.g. human resources) outside of the range where they have higher productivity is likely to affect the ability of those resources to capture superior value over its cost. Also, a multi-country scope increases the diversity of environments, as well as the number of rules and regulations to which the subunit is exposed (Contractor et al., 2002; Lu & Beamish, 2004). Moreover, the organization's size is not only likely to favour increased levels of specialization within each individual function, but also favours an increased number of hierarchical levels in a way that creates costly bureaucratic processes (Jones & Hill, 1988). All together, these effects suggest that additional information processing is necessary to control the subunit (Galbraith, 1974), which makes it difficult to oversee its profitability (Ethiraj & Levinthal, 2004; Larsen et al., 2013). Hypothesis 3 is established as follows:

> *Hypothesis 3:* In its initial establishment, the higher the subunit's structural complexity is, the lower its performance.

3.4.4 The Moderating Role of Ownership Mode

The world of organizations is increasingly being populated by outsourced structures, which are organizations or business units "*whose agents are themselves legally autonomous and not linked through employment relations"* (R. Gulati et al., 2012, p.

573). The goal of this subsection is to analyze whether the theorized effects of functional and geographical scope over subunit performance extend to outsourced structures[5].

Before delving into the analysis, it is important to analyze the intrinsic differences and similarities underlying the decision making process of in-house versus outsource data, with the objective of valuing whether is it possible to analyze the two processes with the logic described above. In particular, this requires the examination of the motivations and role of third party operators (i.e. service provider firms) in the definition of a firm's geographic and functional scope. With regard to functional scope, service providers' motivation to expand their activities is a mechanism to appropriate additional volume gains and to have a good use of the skills and capabilities developed in A&T offshoring. With regard to geographic scope expansion, studies have shown that service providing firms are motivated to expand internationally by a double purpose, in one hand to develop new services according with the location's comparative advantages and in the other with the idea of accessing talent pools in new destinations as the initial ones lose their competitive edge (e.g. Athreye, 2005; Niosi & Tschang, 2009). Beyond the motivations of service providers, anecdotal evidence suggests they play an active role in the determination of a focal firm's footprint. While some firms are powerful enough as to impose locations to the service providers, most firms may accommodate their location selection to the available pool of destinations where their preferred providers perform operations.

In the case of geographical expansion through outsourcing modes, I argue that the negative effects of scope over subunit's performance are attenuated when the operation is run by a third party. Two mechanisms support this logic. The first mechanism is self-selection, as it has been pinpointed in the literature that functions and tasks with higher

[5] This paper follows the theoretical framework of the structural complexity construct defined by Hall (1996) which does not consider ownership choices (in-house or outsource) as influencers of the aggregate complexity of the organization. Hence, this paper does not incorporate any theorizing about moderation effects of ownership choices on the levels of structural complexity.

levels of interdependence (i.e., those that face higher demands for coordination) are less likely to be placed out of the firm's control (Aron & Singh, 2005; Hagel & Singer, 1999). The second mechanism is modularization, as business units executed by third-party operators typically operate under higher pressures to standardize and optimize processes (Davenport, 2005) and actively utilize design mechanisms that facilitate coordination without the presence of hierarchical relations (Schilling & Steensma, 2001). Standardization suggests the continuous measuring and optimization of individual tasks, as well as the application of 1) mechanisms that minimize the need for ex-post coordination, and 2) quality control routines that facilitate the follow up of rules and plans across teams, thereby decreasing the need for continuous communication or face-to-face interactions. Redesign mechanisms are more commonly expected for service providers than for processes developed by the firm itself.

The third mechanism involves a reduction of their exposure to local environments, as the focal firm avoids costly investments in learning the rules and regulations of the country where the activities are performed. At the same time, the geographies are expected to make less of an impact on the decreasing ability of organizations to capture resource synergies. On one side, the management of outsourced business units is likely to face the same limitations on learning and other diseconomies of time compression (Vermeulen & Barkema, 2002). In the other, economies of scope, such as the management of suppliers, operation or service-level agreements can potentially be centralized, regardless of the geographic level of dispersion in the business unit, thus making the decreased synergies less steep than in fully owned cases. All of these factors, in addition to the superior economies of scale obtained by the service providers (when compared with the typical firm) contribute to a lower geographical diversification impact when this occurs under outsourced settings.

In the case of functional expansion through outsourcing modes, I argue that the positive effects of functional scope over the subunit's performance are reduced when the operation is run by a third party. Two reasons sustain this argument. First, if the focal

organization engages with multiple partners, this increases the level of complexity, as firms need to deal with a greater number of relations and reduced alternatives to access economies of scale or scope (firms may choose to undertake several partners, due to their specific expertise, or as a mechanism to create competition among them). Second, even in the case of firms adopting a single partner to concentrate additional functions, it is argued that synergies are difficult to calculate ex ante, in the process of contract drafting and enforcing (Jones and Hill, 1988), thereby creating significant barriers for the focal firm to access functional scope benefits in outsourced settings. Hypotheses 4a and 4b summarize the logic of the previous paragraphs as follows:

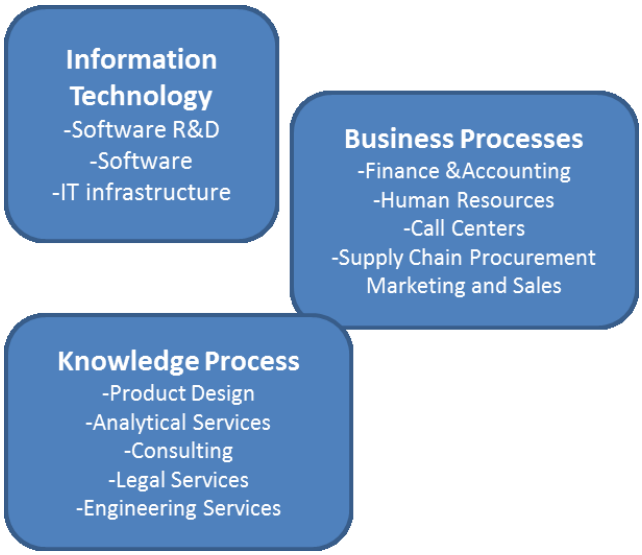
> *Hypothesis 4a:* In the short run, the negative effects that geographic dispersion has (in a related area) over profitability are lower in outsourced subunits than in fully owned ones.
>
> *Hypothesis 4b:* In the short run, the positive effects that functional agglomeration has (within a given country) on profitability are lower in outsourced subunits than in fully owned ones.

The hypotheses above imply that the relations between business unit scope and profitability are influenced by the marginal reactions that complexity, economies of scope and complementarity characteristics have to geographic and functional scope considerations, moderated by ownership mode. The combination of concepts produces two ideal configurations: First, fully owned business units are expected to increase their profitability by adding projects to a given site, as such an action helps pool efforts invested in scouting sites and increases their ability to create synergies among activities. Second, in subunits that are third-party operated, incentives to concentrate operations in a single site are much lower, as the ability to capture synergies is limited (Jones & Hill, 1988). In third-party operated subunits, geographical dispersion does not significantly affect efficiencies generated by specialization, suggesting that outsourced arrangements are better equipped to manage a spatially dispersed architecture.

3.5 Data and Methods

This study tests the proposed hypothesis context of offshoring administrative and technical (A&T) activities. Figure 3.2 includes the specific functions included and the business areas where these functions are classified. As described in the introductory section, intertwined effects and methodological issues lie behind the problems of analyzing the effects that organization design choices have on performance (Colombo & Delmastro, 2008; Siggelkow & Rivkin, 2009). As a result, researchers have called for a finer-grained approach to the tasks involved in fine slicing (Jensen et al., 2013). The fine-grained nature of A&T offshoring data and the use of methods to deal with endogeneity are intended to remove these concerns.

Figure 3.2: Technical and Administrative Activities included in the analysis and Knowledge Bases where those activities participate



Source: Author's elaboration.

Data sources for this analysis are surveys collected annually between 2005 and 2012 by the Offshoring Research Network (ORN). ORN is an international group of academics

studying trends in the offshoring of business services, led by Duke University. Among other projects, ORN runs two yearly web-based surveys to understand the demand (Corporate Client) and supply (Service Providers) sides of offshoring and has been cited in several published studies (Larsen et al., 2013; Lewin & Peeters, 2006; Manning et al., 2008). The data on alternative dimensions of scope (i.e., functions, geographies) and the percentage in cost improvement achieved by each implementation is provided by the Corporate Client survey. In addition, the Corporate Client captures additional information at firm and project levels. At the firm level, the firm profile is combined with offshoring information on strategies, plans, and outcomes. The project level provides information on the functions offshored, launch year, location, motivations, ownership, and savings. For the effects of this analysis, the ORN Service Provider survey is employed to incorporate information on specific task characteristics, in particular, the level of task interdependencies for each of the functions included in the analysis. ORN's survey information is combined with four other sources: data from the International Labor Organization on average wages by country and year; data from the French Research Center on International Economics (CEPII) on geographical distances among countries; data from the Fraser Institute on regulations about credit market, labour market and businesses and data from the International Organization for Standardization (ISO) on quality management certifications, by country and year. The use of multiple sources and the focus on variables measuring facts rather than opinions not only improves the characterization of the theoretical constructs, but also limits the risk of statistical problems involving common method variance (Chang, van Witteloostuijn, & Eden, 2010; Podsakoff & Organ, 1986).

The unit of analysis is the project implementation, defined as a particular function offshored in a given year at a particular site. To focus on the initial design decisions, this analysis exclusively considers implementations executed during the first year of a firm's offshoring experience. The sample used in this study contains 346 implementations developed by 231 firms in the period 1995-2012. Most firms in the dataset are headquartered in the US (136) and Europe (88). Company size, measured by number of

employees, is distributed evenly (between 32-35%) among large- (>10,000 employees), medium- (500 to 10,000 employees) and small- (<500 employees) sized firms. Implementations include projects that are pre-eminently managed by the firm (41%) and projects that, by a majority percentage, are outsourced to a third party (59%). (See Table 3.1 for additional information on firm and project characteristics).

Table 3.1: Sample Descriptive Statistics

A. Distribution of Implementations by Function and Location

Business Functions	*%*	*N*	*Locations*	*%*	*N*
Call Centers	12%	41	India	49%	168
Engineering Services	8%	28	Eastern Europe	12%	40
Finance and Accounting	12%	41	Latin America	11%	39
Human Resources	2%	8	Rest of Asia	8%	29
IT Infrastructure	27%	92	Western Europe	8%	29
Analytical Services	3%	10	China	7%	23
Legal Services	1%	3	US	3%	10
Marketing and Sales	5%	17	Australia	1%	4
Product Design	3%	10	Africa	1%	2
Procurement	5%	18	Middle East	1%	2
R&D	7%	24			
Software Development	16%	54			
Total	100%	346	Total		346

B. Firm level information

Headquarters Location	*%*	*N*	*Projects by firm*	*Freq.*	*Percent*
US	59%	*137*	1	182	79%
Western Europe	38%	88	2	37	16%
Australia	1%	3	3	5	2%
India	1%	2	4	4	2%
Asia	0%	1	6	2	1%
			9	1	0%
Total	100%	231	Total	231	100

3.5.1 Estimation Procedures

The hypotheses were tested by two different methods: Ordinary Least Squares – OLS – and the Treatment Effect Model, also known as Endogenous Switching Regression, as the

latter deals with endogeneity concerns for the subunit's ownership choices, which are expected to have implications on its performance (Hamilton & Nickerson, 2003; Masten, 1996). The Treatment Effect Model requires the estimation of a selection model that explains the decision to use a captive or outsourced approach first. This information was then incorporated into an analysis of the effects of the subunit scope on performance. A Clustered Robust Standard Error (CRSE) correction was included in both approaches to address the potential underestimation of errors in the correlated data that aroused as a consequence of the interrelation between firm- and project-level responses. OLS CRSE offers advantages of being unbiased, consistent with Huber-White standard errors (Wooldridge, 2002) and of being useful in analyzing explanatory variables that are measured at a higher level (as the geographic scope variable) (Moulton, 1990). CRSE are superior to other clustering corrections, such as hierarchical modeling techniques, as the dataset presents a large percentage of single group observations and a small clustering size (1.5 per firm), since these characteristics may create biased estimators under alternative approaches such as Hierarchical Linear Modeling (Clarke, 2008; Raudenbush & Bryk, 2002).

3.5.2 Selection model variables (first stage):

In the selection stage model, the dependent variable is *ownership mode,* a dichotomist variable (0=fully controlled by the firm and 1= third-party operated) that describes the ownership structure in place for the subunit. It differentiates between the mechanisms of control and authority existing in the relations. As discussed in the theory-building section, ownership mode is a significant variable in defining the particular path of the intra- and inter-country diversification path adopted by a given firm, which affects the pattern of actions (and hence, the performance) of the subunit (Hamilton & Nickerson, 2003; Masten, 1996).

Instrumental variables

The instrumental variables used in the selection model were chosen to cover firm's motivations, task characteristics, and host country conditions driving the ownership mode

decision. While these variables are good predictors of adopting fully owned or outsourced approaches to fine slicing, they do not necessarily predict subunit performance. First, *firm's motivations to offshore* reflect the locus of the decision to offshore, but not the execution or outcomes of the process. This variable is measured by asking firms about the importance of a global strategy as the driver in the offshoring of a particular function, which is a 1-5 Likert variable obtained from the ORN Corporate Client data. Second, *task interdependency* refers to the average level of interactions and communications required between the given function and its customers. The fact that there are many different strategies to manage interdependency among tasks applied differently across organizations (Srikanth & Puranam, 2011) suggests that there is no direct link between this variable and subunit performance. A measurement of task interdependency was obtained from the ORN Service Provider survey, and its values correspond to the average assessment of task interdependency for each of the 12 functional operations among 481 service providers of A&T operations on a 1-5 Likert scale. Third, *process standardization* in the host country is a measure involving the degree of adoption and implementation of quality standards in a particular environment. Higher quality in a local environment creates more legitimacy for local firms to act as service providers in A&T activities, thus influencing ownership decision. In addition, given that no evidence of a relation between profits and host country location is available in previous offshoring studies, I regard this variable as sufficiently distant from performance; therefore, it can safely be considered as an instrument in this analysis.

3.5.3 Estimation model (and OLS) variables:

The dependent variable in the second stage of the treatment and in the OLS models represents the *saving achieved.* Cost reduction achievement is consistently described in the literature as the single greatest motivation suggested by firms when pursuing A&T offshoring (Dossani & Kenney, 2007; Manning et al., 2008), and the variable has been used in previous analyses for academic (e.g. Massini, Perm-Ajchariyawong, & Lewin, 2010) and industrial audiences (A.T.Kearney, 2007). Savings achieved is considered as an adequate performance measure, given two considerations. First, more than 80% of the

projects involved in the analysis have reported that reducing their expenditures in labour or other costs is an important or very important driver behind the decision to offshore the function. Second, the focus on short-term effects makes cost reduction a clearer outcome rather than objectives such as learning, innovation or growth, which are likely to require more time to develop a tangible outcome.

With regard to the measurement, it incorporates the percentage of cost improvement achieved by the function's implementation in the year previous to the survey's date. The average time between the initial implementation and survey completion is 3.6 years, with a range between 0 and 17 years. The cost-achievement measure evaluates the extent to which an offshore subunit allows the firm to free up resources when implementing structural changes. By adopting a cost- improvement measure, this study is consistent with most strategic research that focuses on financial measures as an indication of overall efficiency (Venkatraman & Ramanujam, 1986).

Independent Variables

Geographical Dispersion: This variable measures whether the subunit has adopted a pattern of spatial diversification in related activities. As I am exploring the characteristics prevalent in the subunit's initial establishment, the core issue here is whether the firm has diversified its design (within related areas) rather than the number of countries in which it has diversified. This logic is rooted in Internationalization Process Theory (Johanson & Vahlne, 2009), as firms are expected to limit their geographical expansion due to learning costs and uncertainty reasons (Contractor et al., 2002). With relation to its measurement, this is set up as a dichotomous variable that indicates whether the initial offshore design for a given firm incorporates multiple locations for activities belonging to the same knowledge base, and zero otherwise. The segments and their correspondent activities were classified in Figure 3.2.

Functional scope: This measures the multiplicity of functions that are chartered to a given site and follows the logic of product diversification applied to the firm-level

literature (Hitt et al., 1997). It is calculated as the number of functions performed in a given country from eleven potential activities distinguished within the ORN data, which were described in Figure 3.2. No differences were introduced among functions in the same knowledge base and those belonging to different segments. An alternative measurement at the knowledge base level was also used. The direction and significance of the results were not modified under the change.

Structural complexity: This follows the classical definition of structural complexity, which includes the number of organizational subsystems in the subunit, including the level of horizontal complexity, geographical complexity, and social complexity (Hall, 1996; Sinha & Van de Ven, 2005). The construction of this variable replicates the work by Larsen et al. (2013), who calculated complexity as the product of the number of geographies, number of knowledge bases involved and the number of employees operating in offshore locations.

Ownership mode: In the OLS model, this variable includes the alternatives 0= fully and partially controlled by the firm and 1= third-party operated (outsourced arrangements), as reported by the firm. However, in the second stage of the Treatment Effects Model, this variable is substituted by an estimated version of the ownership mode in the first stage of the model (instrumental variable estimation). This operation is performed as a critical step in the removal of potential endogeneity issues.

Controls: Several control variables that might impact the dependent and independent variables were used in the analysis[6]. First, to remove the impact that differences among locations present in the level of project savings, controls for locational advantages are

[6] A bigger set of control variables than the one presented here was applied to the dataset in order to rule out alternative explanations. As the incorporation of additional variables reduces the degrees of freedom and causes other potential problems such as multicollinearity with other control variables included here, I removed many of them from the results presented in this chapter. The specific variables that were analyzed and dropped for this presentation are described in the section of robustness checks presented at the end of section of results.

included in the regression. In this case, the wage ratios between host and home countries' salaries are included to control for arbitrage effects on profitability rather than the effects of a given design. The data on wages included host and home information on average wages in dollars by year from the International Labor Organization (ILO). Second, to control for effects at the macro level, which can affect the implementation performance, the current analysis incorporates the industrial sector –manufacturing (omitted), services, and finance – where the firm belongs. Third, the firm size –measured as a natural logarithm – is included. Fourth, controls to measure the impact of distance between headquarters and the site are also in place. Geographical distance is calculated following the great circle formula (natural log of thousand kms), which uses the latitudes and longitudes of the most important cities/agglomerations (in terms of population) (Mayer & Zignago, 2011). Fifth, data on economic freedom focused on credit, labour and business regulations. This information seeks to offer an proxy categorization on the levels of institutional stability by country and year (Gwartney, Lawson, & Norton, 2012). Sixth, a dichotomous variable indicates whether or not the firm possesses a general offshoring strategy (yes =1). Previous studies have found a significant relation between a guiding strategy and offshoring performance (Massini et al., 2010), thus is appropriate controlling for the effect of this variable in initially established projects.

Descriptive statistics and a correlation matrix for the 346 implementations are presented in Table 3.2. The correlations between individual pairs of variables are below the standard threshold of 0.5. Additional tests show variance inflation factors below 1.75, and the independent variables show a condition number equal to 4.17. All of these tests suggest that no potential multicollinearity problems exist in the data. The descriptive statistics also present interesting insights about project savings (the dependent variable).

Table 3.2: Correlations and Descriptive Statistics (N=346)

	Variable Name	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1)	Savings Achieved	1														
(2)	Geographic Scope (related activities)	-0.11*	1													
(3)	Functional Scope (same country)	0.27**	0.12*	100%												
(4)	Structural Complexity	-0.15**	0.25**	0.12*	1											
(5)	Outsourcing (yes=1)	-0.05	0	-0.14*	0.13*	1										
(6)	Firm size (log)	-0.08	0.15**	-0.1†	0.25**	0.1†	1									
(7)	Firm possesses an offshore strategy (1=yes)	0.11*	0.06	0.18**	0.21**	0.03	0.17**	1								
(8)	Relative Wages (host/home countries)	-0.14*	-0.02	-0.08	-0.03	-0.16**	-0.04	-0.05	1							
(9)	Finance Industry (1=yes)	0.11*	-0.01	-0.12*	-0.01	0.13*	0.28**	0.10*	-0.06	1						
(10)	Service Industry (1=yes)	0.06	-0.21**	0.15**	-0.19**	0	-0.39**	0	0	-0.46**	1					
(11)	Geographical distance (home-host countries)	0.27	0.03	0.05	-0.01	0.22**	0.18**	0.11*	-0.24**	0.11*	0.06	1				
(12)	Institutional Stability (by country)	-0.16**	-0.03	-0.07	-0.03	-0.20**	0.05	-0.03	0.37**	0.09†	-0.06	-0.28**	1			
(13)	Task interdependence	0.07	-0.03	0.04	0.07	-0.16**	0.01	0.06	0	-0.09†	-0.04	-0.09†	0.06	1		
(14)	Function offshored as part of firm's global strategy	0.08	-0.01	0.12*	-0.19**	-0.22**	0.08	0.07	0.02	-0.07	-0.11*	-0.04	0.10†	0.03	1	
(15)	Process Standardization (by country - ISO 9001)	-0.07	-0.12*	-0.18**	-0.18**	0.08	0.01	0.08†	-0.02	0.08	0.08	0.09†	0.04	0.05	0.04	1
	Mean	32.91	0.064	1.856	2.042	0.58	7.462	0.316	0.301	0.142	0.561	8.766	6.22	3.637	3.134	8.784
	Std. dev.	23.056	0.245	1.545	10.74	0.494	3.306	47%	0.699	0.349	0.497	1.015	0.714	0.136	1.503	1.958
	Min. values	-40	0	1	0	0	0	0%	0.075	0	0	5.153	4.286	3.439	1	2.639
	Max. values	100	1	9	100.8	1	13.122	100%	12.545	1	1	9.845	8.71	4	5	12.322
**** p<0.01, * p<0.05, † p<0.1**																

The dispersion of savings suggests that the dispersion of the dependent variable is relatively broad, with projects achieved from additional operation costs of 40% to savings up to 100%. Firms in the sample achieved an average of 31% savings, with a standard deviation of 23%. The variable is normally distributed, and a significant majority of projects (85% or more) obtained positive efficiencies by the establishment of offshore subunits. However, there is significant variation the in firms' project success, and this paper will analyze to what extent this dispersion can be related to architectural differences among subunits. Regarding the external validity and consistency of the dependent variable, it is noteworthy to remember that while the ORN data were not obtained by a representative sampling methodology, the mean and relative dispersion of the performance measure shown in the dataset are aligned with those found in the field by industry experts (e.g. A.T.Kearney, 2007).

3.6 Results

Table 3.3 reports the results from the OLS CRSE and Treatment Effect Models. Four different models are presented in Table 3.3 and all of them incorporate the 346 observations under analysis. Models 1 and 2 present the estimations under OLS CRSE with the control variables and all variables, respectively, whereas Models 3 and 4 offer similar results, but under the Treatment Effect Model. The results of Model 4 are used in the hypotheses testing (1-3) because the test of the selection model (the Wald test of independent equations) rejects the null hypothesis ($\rho=0$), indicating the presence of endogeneity effects when analyzing the effects of scope decisions over a subunit's performance[7].

The results of Table 3.3 offer weak support for Hypothesis 1 and strong support for Hypotheses 2 and 3. First, the prediction of negative returns to geographical

[7] However, the significance levels in the variables under analysis show no difference between Models 2 and 4.

diversification on related activities shows a p-value equal to 0.07, which is below the cutoff point of 0.10 for weak support, but above the standard support threshold of $p < 0.05$. The magnitude of the geographic scope coefficient is relatively high, suggesting that on average, the incorporation of related activities in multiple sites presents a negative impact of more than 10% in overall project savings when compared to the savings achieved by projects in single locations.

Second, in relation to the diversification of functions in a single country (Hypothesis 2), Table 3.3 shows that this strongly contributes to the ability to generate savings at the subunit level ($p<0.01$). This result supports the argument of synergies outlined in the theoretical section, which suggests that an increase in the number of functions facilitates economies of scope among co-located activities. The coefficient of this variable (functional scope) suggests that it alone produces a 3.8% increase in profitability when an additional function is included in an existing site. Third, there is a strong negative effect of structural complexity in a subunit's profitability, which is consistent with the complexity argument that a broader scope in the initial structure is likely to affect the ability to manage the subunit.

Table 3.3: Regression Analyses of Project Savings on Scope Dimensions

		OLS Models			Treatment Effects	
	VARIABLES	**(1)**	**(2)**		**(3)**	**(4)**
	Estimation Model DV: Savings Achieved					
(H1)	Geographic Scope		-10.57†			-10.12†
	(related activities)		(0.07)			(0.07)
(H2)	Functional Scope (same		4.12**			3.87**
	country)		(0.00)			(0.00)
(H3)	Structural Complexity		-0.31**			-0.29**
			(0.00)			(0.00)
	Outsourcing (yes=1)	-7.82*	-4.32		-25.79**	-19.34*
		(0.05)	(0.15)		(0.00)	(0.02)
	Firm size (log)	-0.91	-0.49		-0.62	-0.27
		(0.14)	(0.37)		(0.27)	(0.61)
	Firm possesses an	3.31	2.37		2.87	2.09
	offshore strategy (1=yes)	(0.44)	(0.46)		(0.45)	(0.51)
	Relative Wages	-1.61†	-0.99		-2.36*	-1.65*
	(host/home countries)	(0.09)	(0.14)		(0.03)	(0.04)
	Finance Industry (1=yes)	10.87*	8.69†		14.66**	11.90*
		(0.03)	(0.06)		(0.00)	(0.01)
	Service Industry (1=yes)	2.04	-2.34		4.00	-0.50
		(0.61)	(0.49)		(0.33)	(0.89)
	Geographical distance	6.21**	5.69**		7.30**	6.62**
	(home-host countries)	(0.00)	(0.00)		(0.00)	(0.00)
	Institutional Stability	-4.09†	-3.86*		-6.09*	-5.53*
	(by country)	(0.06)	(0.05)		(0.02)	(0.02)
	Constant				21.44	14.68
					(0.38)	(0.50)
	Selection Model DV: Probability of an outsourcing model in first implementation					
	Task interdependence				-1.71**	-1.74**
					(0.00)	(0.00)
	Function offshored as				-0.19*	-0.17*
	part of firm's global				(0.01)	(0.03)
	Process Standardization				0.11†	0.10†
	(by country - ISO 9001)				(0.06)	(0.06)
	Firm size (log)				0.05	0.05
					(0.14)	(0.16)
	Firm possesses an				-0.04	-0.02
	offshore strategy (1=yes)				(0.88)	(0.94)
	Relative Wages				-0.14	-0.16
	(host/home countries)				(0.16)	(0.21)
	Finance Industry (1=yes)				0.32	0.32
					(0.29)	(0.30)
	Service Industry (1=yes)				0.12	0.13
					(0.60)	(0.57)
	Geographical distance				0.13	0.14
	(home-host countries)				(0.13)	(0.12)
	Institutional Stability				-0.29†	-0.28†
	(by country)				(0.05)	(0.06)
	Constant	11.71	6.28		6.22**	6.25**
		(0.59)	(0.74)		(0.00)	(0.01)
	Wald test of indep. Eqns.				8.07**	4.51*
	(rho=0): chi2:				(0.00)	(0.03)
	Observations	346	346		346	346
	R-squared	0.16	0.24			
	Log likelihood	-1549	-1530		-1748	-1732
	DF	8	11		8	11
	R2	0.155	0.242		na.	na.
	Robust pval in parentheses '** p<0.01, * p<0.05, † p<0.1					

An additional result emerging from this analysis is that in initial implementations, in-house offshore arrangements are likely to report much higher profitability than outsourced arrangements. This finding is significant, as these differences in savings achieved between in-house and outsourced operation modes are exclusive to the initial set of projects performed by firms. Once the effects of follow up implementations are considered, the difference in savings achieved between in-house and outsourced projects are no longer significant (this was verified in robustness checks performed by the author and included in Table 3.5). A potential explanation for the differences on the initial implementations is that adopting outsourced modes of operations entails larger learning costs, which make it more difficult for firms to attain performance savings in the initial stages but compensate later as additional projects performed under outsourced arrangements require less involvement than in-house projects. An additional (and complementary) explanation, is that the addition of projects in in-house centers are more likely to elevate organization complexity, reducing the ability for the firms to produce savings as the organizational costs of performing in house operations overseas increase.

Table 3.4 goes further to comprehend the particular effects that the addition of functions has under different governance modes, as suggested by Hypotheses 4a and 4b. In this table, Column 1 presents the results exclusively for captive implementations, and Column 2 does similarly for outsource implementations. The separation of projects by their organizing mode provides weak support for the claim that the negative effects of geographical dispersion on a project's profitability are higher in wholly owned subunits than in third-party operated ones. Columns 1 and 2 provide support for the claim that in the case of outsourced arrangements, an increase in geographical dispersion does not affect a subunit's performance level, whereas it does affect the performance on those that are wholly owned. A similar situation occurs when evaluating the effects of functional scope in both columns of Table 3.4. The results shown in Column 2 show strong support for Hypothesis 4b, in which the effect of splitting the sample to exclusively include firm owned projects has a positive and significant ($p<0.01$) coefficient, while the effect on exclusively third-party operated units is non-significant. Finally, an unexpected result

emerges from the evaluation of structural complexity among governance modes. The complexity effects are highly significant in outsourced operations, but the same result is not replicated in fully owned ones.

Table 3.4: Regression Analyses of Project Savings on Scope Dimensions (Only in-house or outsourced)

		OLS Models	
		Only Captive Obs.	Only Outsource Obs.
	VARIABLES	**(1)**	**(2)**
(H4a)	Geographic Scope	-15.95†	0.99
	(related activities)	(0.06)	(0.89)
(H4b)	Functional Scope	5.61**	-1.33
	(same country)	(0.00)	(0.62)
	Structural Complexity	-0.14	-0.27**
		(0.91)	(0.00)
	Firm size (log)	-0.77	-0.12
		(0.27)	(0.88)
	Firm possesses an	0.68	3.28
	offshore strategy	(0.87)	(0.46)
	Relative Wages	-1.15	11.90
	(host/home countries)	(0.11)	(0.35)
	Finance Industry	15.52†	8.10
	(1=yes)	(0.07)	(0.12)
	Service Industry	-7.28	1.18
	(1=yes)	(0.13)	(0.80)
	Geographical distance	6.33**	5.44**
	(home-host countries)	(0.00)	(0.01)
	Institutional Stability	-2.29	-10.21*
	(by country)	(0.37)	(0.02)
	Constant	-7.57	43.26
		(0.76)	(0.14)
	Observations	147	199
	R-squared	0.40	0.16
	Log likelihood	-647.5	-871.5
	DF	10	10
	R2	0.400	0.160
	Robust pval in parentheses '** p<0.01, * p<0.05, † p<0.1		

Control variables. A brief review of the results involving the control variables is presented here. First, there is a significant effect of the variable regarding a country's relative wages, offering support for the intuitive proposition that finding locations where

salaries are proportionally lower to those in the home country is advantageous from a profitability perspective. Second, contrary to expectations, geographical distance between sites and headquarters is positively correlated and highly significant with a project's savings; however, this is highly influenced by the concentration of projects in India, as it has accumulated more than 48% of the total implementations under consideration. Third, institutional stability measures offer interesting insights as well, as they suggest that projects in less stable environments are more profitable, thus implying that additional rents may be available for firms internationalizing to less safe environments. Fourth, in terms of firm and industry characteristics, firm size effects were not significant at $p \leq 0.05$, suggesting that there is no significance in the argument regarding advantages of scale that arise as a consequence of the firm's magnitude (at least with respect to the number of employees). Fifth, with regard to the industry sector, a positive relation is shown among Financial Sector companies and their ability to achieve superior returns. An explanation as to why firms in the financial sector seem better equipped to reap superior performance points to the nature of offshoring administrative support activities. When compared to manufacturing or service firms, financial sector firms structurally maintain a higher dependency on administrative tasks, such as customer-oriented processes or control-related activities. Hence, the advantages they obtain by devoting managerial attention to these areas are higher, and consequently, their ability to achieve superior performance is enhanced.

Robustness Checks: Additional analyses were conducted for the purpose of validating the robustness of the findings under alternative specifications. First, as referred to in the variable description section, additional formulations of the geographic, functional scope, and complexity variables were used, measuring them at the function and area levels. The coefficients of these formulations are similar in sign and significance to those discussed above. Second, tests of model specification to identify the potential non-linearity of the diversification variables were also used. These tests suggest that all information regarding diversification have been captured under the formulations presented here. Third, the incorporation of additional data including implementations beyond the first period was

performed to analyze the long term effects of ownership mode over profitability (see Table 3.5). Fourth, additional robustness checks were performed with dummy variables for the effect that the main home country (USA) and host country (i.e. India) have on the results, given their relative importance on the results. Overall these tests suggested that the organizational effects theorized are robust to different definitions of scope, non-linearity conditions, and potential effects specific to dominant host-home countries in the dataset.

Table 3.5: Regression Analyses of Project Savings on Ownership Mode

	Only Intial implement		All implement
VARIABLES	**(1)**		**(2)**
Outsourcing (yes=1)	-7.86*		-4.05
	(0.05)		(0.18)
Firm size (log)	-0.95		0.34
	(0.14)		(0.59)
Firm possesses an	3.12		2.31
offshore strategy (1=yes)	(0.47)		(0.55)
Relative Wages	-1.69†		-2.52*
(host/home countries)	(0.09)		(0.02)
Finance Industry (1=yes)	11.28*		9.73†
	(0.02)		(0.08)
Service Industry (1=yes)	2.06		7.65†
	(0.61)		(0.06)
Geographical distance	6.29**		5.53**
(home-host countries)	(0.00)		(0.00)
Institutional Stability	-4.10†		-5.13**
(by country)	(0.06)		(0.00)
Constant	11.08		9.65
	(0.61)		(0.54)
Observations	342		718
R-squared	0.16		0.17
Log likelihood	-1531		-3211
DF	8		8
R2	0.156		0.174
Robust pval in parentheses '** p<0.01, * p<0.05, † p<0.1			

Fifth, in order to rule out additional theoretical explanations, a long list of robustness checks including additional control variables was applied during the data analysis stage. As explained in the definition of the control variables, some additional controls were removed from the final presentation as they had no impact on the key variables under analysis and in some cases they presented collinearity problems with other control variables. The purpose of the robustness checks was to control for differences in profitability rooted in institutional characteristics rather than the organizational factors theorized here. Among the variables included in the robustness checks were temporal distance which is measured with the time zone difference among the pairs home-host country, and the cultural distance which is measured with the index developed by Kogut and Singh (1988) derived from four cultural dimensions (power distance, individualism, masculinity and uncertainty avoidance) captured in the work of Hofstede (2001). A different set of country level variables included in the robustness checks included the comparison of education scores among countries provided by the World Bank (measured by tertiary and secondary enrollment and at the level of expenditures per student in tertiary and secondary education as percentage of GDP), and the level of applicability of quality standards (measured by the logarithm of the number of firms awarded with the certificate ISO9000 in the country by year). Finally, a different set of robustness checks were implemented to analyze changes in the firm's behavior occurring when the firm adopted the subunit specialization practice at different stages of the practice development (bandwagon behaviors, for instance). This included the incorporation of dummy variables in key years to understand whether significant differences occurred in the behaviour of firms adopting offshoring in the initial years (1995-2003), in the period where standards such as capability maturity models, information security standards were initially implemented (2004-2006) or the periods where the level of commoditization was widespread in the industry (2007-2012). These specifications did not show significant differences in the impact of the organizational variables studied here, so they were removed from the model specification presented.

3.7 Discussions and Conclusions

This study examines the impact that startup design decisions have on profitability at the subunit level. By analyzing the relevant elements of subunit scope, this inquiry has sought to understand the effect that architectural decisions have on subunit performance. This work responds to calls for additional research on organization design (Jensen et al., 2013; D. Miller et al., 2009) that address the challenges of greater environmental dynamism, integration of autonomous legal entities, and increased globalization (R. Gulati et al., 2012). At the same time, this research attempts to be sensitive to the methodological concerns existing in the field (Colombo & Delmastro, 2008).

This paper makes three specific contributions. First, the influences of three work distribution dimensions – geographic scope, functional scope, and structural complexity – are relevant, as they provide greater detail on the distinct mechanisms affecting activity performance under the contexts of fine slicing. *Geographic scope* was analyzed from the perspective of challenges in coordination and complementarities when related activities are dispersed in more than one location. The results suggest that, for fully owned arrangements, the addition of more than one location is detrimental for firm performance, suggesting that boundaries exist to the extent that a typical firm can profitably capture the advantages of fine slicing (Contractor et al., 2010), and contributing to the dialogue of globalization and the specialization of firm's activities (Buckley & Ghauri, 2004). *Functional scope* was analyzed from the perspective of pooling (related and unrelated) activities in a single site. In the case of fully owned subunits, the benefits of co-location are strong, suggesting that the initial establishment of a subunit around a single location is a good strategy, not only for related activities, but also beyond a particular knowledge base. *Structural complexity* incorporates the effects of a more intricate design on the ability to obtain a positive performance. The strong negative effect of this variable offers a step forward on the approaches describing the nature of the interdependencies existing among elements in organization design (Levinthal, 1997; Rivkin & Siggelkow, 2003), and particularly in the analysis of information processing burdens created by global work distribution.

Second, with the incorporation of the analysis under fully owned and outsourced organizing modes, this paper sheds light on the issue of geographical and functional scope comprising multiple legal entities (R. Gulati et al., 2012). Strong support for the moderation effects proposed in Hypothesis 4 describes the distinctive characteristics of outsourced initiatives when dealing with functional and geographic diversification. This result suggests that two ideal configurations or peaks in a scope performance landscape can be proposed (Levinthal, 1997): one of them for wholly owned and geographically clustered structures, and the second composed by outsourced structures with larger geographical dispersion. Wholly owned structures would obtain their strengths from the extensive use of resources in a given location and the complementarities among them, but would be able to capture Ricardian rents from narrower slices in the production processes, while outsourced structures would obtain superior capability in accessing comparative advantages from individual resources, but with less access to synergistic effects among them. By adopting the perspective that ownership decisions are implemented dependent on a firm's current competencies, the results of the analysis make a strong case for the advantages of aligning subunit scope decisions to a firm's existing capabilities. In the case of multinational organizations, this suggests that the firm's approaches to globalization and value chain governance are likely to provide better results the more related they are with the existing firm's characteristics. These results complement discussions on the reconfiguration of firm resources (Galunic & Eisenhardt, 2001) and the reinforcing nature of activity choices (Siggelkow, 2001).

Third, empirically, this paper makes a step forward in connecting organization design and performance in a quantitative study. Much of the literature on organizational design has been developed on the basis of anecdotal evidence and case research (Colombo & Delmastro, 2008), with researchers struggling to find conclusive large sampled evidence of the role that organization design has on performance, due to the confounding effects between design choices and other factors (Siggelkow & Rivkin, 2009), or due to methodological issues with performance indicators, units of analysis, and estimation

techniques (Colombo & Delmastro, 2008). By focusing on the first architecture adopted to undertake a relatively new practice (the offshoring of business support activities), this study controls the sources of heterogeneity in a firm's behaviour. In addition, the offshoring context offers the advantages of support functions being relatively standard across industries and countries, minimizing the risk of confounding factors suggested in the literature (J.-F. Hennart, 2011). In sum, the setting of this study facilitates making the connection between design factors and performance, which have long been theorized, but elusive to test in a quantitative analysis.

This study has several limitations that need to be acknowledged. First, the nature of savings achieved as a performance measure offers a partial picture of the motivations by which a new subunit may be established, and in this sense, is an imperfect representation of the firm's objectives. In particular, this performance measure is not ideal in analyzing the types of implementations that are motivated by factors such as risk diversification, or skillset building. In fact, geographically dispersed operations established with the purpose of: i) reducing the level of dependency on some countries or regions to avoid risks; or ii) increasing capabilities or developing resources in advanced locations, are both outside the scope of this paper. Second, this paper does not incorporate the analysis of interactive effects on the variables under analysis. These are the integrated effects of how configurations involving certain geographies, functions, and ownership modes compare with others, as some of the integrated effects may produce differences from what piecemeal analyses may suggest. However, such analyses are outside the scope of the current paper.

In conclusion, the model presented in this paper brings to the fore the importance of complexity conditions and resource synergies when defining a subunit's architecture. By drawing on these two concepts, this paper examines how scope design decisions modify the level of a subunit's profitability. This study not only finds that functional and spatial scope decisions have a significant impact on project savings, but also that these decisions are interdependent with the governance mode on which the subunit operates. The degree

of interdependencies among scope dimensions suggests that the initial configuration reaches high relevance as the decisions made at the inception of the subunits may limit the flexibility that organizations have on subsequent adjustment (Sydow et al., 2009). The literature suggests that as a consequence of these interdependencies, subunits would be stuck on a given path, as effective change requires incorporating not one, but multiple dimensions simultaneously. Hence, in my opinion, the next step to take is to look at how these initial configuration decisions evolve over time, and the effects that emerge as firms learn to cope with coordination demands and synergistic opportunities. In this way, we can significantly improve our understanding of the long-term effect of organization design on performance.

CHAPTER 4: INTERNATIONALIZATION OF A FIRM'S UPSTREAM AND SUPPORT ACTIVITIES: LINKING PERFORMANCE FEEDBACK AND OFFSHORING EVOLUTION

4.1 Abstract

This article analyzes internationalization processes in the firm's upstream and support activities. I combine the Internationalization Process Model with Performance Feedback Theory to explain the geographical and functional expansion of firm owned and outsourced offshoring. I suggest that while financial aspirations fulfillment affects geographical expansion, it is the achievement of operational aspirations what explains functional diversification within a country. This study tests these relations in a dataset of offshoring projects undertaken by 230 firms in the period between 1995 and 2012. Overall, I find support for the model, and find that while the ownership structure affects the interpretation of financial aspirations, operational aspirations offer consistent guidance under both fully owned and outsourced organizing modes.

4.2 Introduction

How do firms approach value chain internationalization? This is an increasingly relevant question in an era where the exploitation of country comparative advantages and alternative organizing modes is producing fundamental transformations in the ways firms operate (Blinder, 2006; Contractor et al., 2010; Lewin & Peeters, 2006; Maskell et al., 2007). The process of internationalization in upstream activities (e.g., product design) and support activities (i.e., human resources, IT infrastructure) possesses distinctive characteristics because 1) it refers to activities developed with the purpose of serving home or global markets (Kenney, Massini, & Murtha, 2009); and 2) these activities are not necessarily repeated among countries, but are rather distributed to reap exploration and exploitation advantages (Barkema & Drogendijk, 2007). While this process portrays an idea of firms adopting activity disaggregation patterns that focus on optimal allocation in geographical (offshoring) and organizational (outsourcing) dimensions (Antras &

Helpman, 2004; Beugelsdijk et al., 2009; Kedia & Mukherjee, 2009), scholars have recognized the incremental nature of processes as firms learn to locate, source, and coordinate activities around the world (Larsen et al., 2013; Lewin & Peeters, 2006; Maskell et al., 2007; Vahlne, Ivarsson, & Johanson, 2011). However, despite the importance of this sequential nature involving the reconfiguration, little is known about the mechanisms by which firm's previous experience helps shape different evolutionary paths, as the research has mainly focused on the contingencies that influence offshoring characteristics (e.g. Doh et al., 2009; J. Gooris & C. Peeters, 2014; Grossman & Helpman, 2004). This paper furthers our understanding with respect to the progressive internationalization in the firm's upstream and support processes by examining how the characteristics of previous operations facilitate the geographic or functional expansion in these activities.

The current paper approaches this micro-evolutionary issue by combining the lenses of the Internationalization Process (IP) model, also known as Uppsala Model (Johanson & Vahlne, 1977, 2009) and the Performance Feedback (PF) theory (Bromiley, 1991; Greve, 1998) to examine the internationalization issues emerging in upstream and support activities. The IP model explains foreign expansion from a process view, which considers future internationalization trajectories as heavily dependent on a firm's current experience. The IP model distinguishes between stage variables (i.e., knowledge, opportunities, and network position) that influence and are influenced by change variables (i.e., learning, commitment decisions, relationships, and trust building) (Johanson & Vahlne, 1977, 2009). The IP model has been praised for its simplicity and parsimony, and for its process implications, which describe firms that adapt and learn from experience integrating them to market expansion and resource commitment decisions. Among its weaknesses, the IP model has been criticized for its rigidity, which makes it difficult to explain decreases in country commitment (Santangelo & Meyer, 2011), its focus on the replication of activities in each country (Barkema & Drogendijk, 2007), and its portrayal of a discrete pattern of evolution among organizing modes (Benito, Petersen, & Welch, 2009). In addition, it has been suggested that its perspective

mainly describes the processes emerging from the internationalization of downstream activities (such as marketing and sales) instead of upstream or support activities (Fletcher, 2001). I review these concerns and adopt the PF lens to provide a more pointed focus on upstream and support activities.

Performance Feedback Theory (Bromiley, 1991; Cyert & March, 1963; Greve, 1998) integrates organizational change and search processes with the notion that organizations interpret and adjust their behaviour according to experience (March & Simon, 1958). This theory expands the problemistic search model developed by Cyert and March (1963) by combining it with the risk- taking model developed by Kahneman and Tversky's (1979) prospect theory to explain why organizations may change their risk-taking profiles throughout time, depending on their aspiration levels (Argote & Greve, 2007). Previous research has already exploited the connection between IP model and PF theory (e.g. Petersen, Pedersen, & Lyles, 2008; Wennberg & Holmquist, 2008). In the case at hand, I expand these understandings by developing a model that explains value chain adjustments (i.e., functional or geographic expansion patterns) by the relative attainment of performance aspirations in the previous implementation.

The goal of this paper is to understand how the present state of internationalization and its performance outcomes contribute to foreign expansion trajectories in upstream and support activities, both in terms of activities and geographies. The framework proposes that while financial performance attainment triggers patterns of geographic expansion, it is the fulfillment of operational aspirations that motivates functional diversification in a given environment. In addition, the model proposes that ownership structure affects the interpretation of financial aspiration attainment, but it does not impact the interpretation of operational aspiration fulfillment. The model is tested on a dataset tracing the initial configuration, outcomes and follow-up steps adopted by 230 firms that restructured their business support activities between 1995 and 2012. This information was collected by the Offshoring Research Network (ORN) led by Duke University.

This paper contributes to a better understanding of the phenomena under analysis and to both framing literatures. First, it sheds light on the dynamics of internationalization (Forsgren, 2002) by including the notion of performance feedback mechanisms that trigger alternative expansion paths. By analyzing upstream and support activity internationalization, this paper brings to the fore the issue of learning-by-doing in value chain globalization (Lewin & Peeters, 2006; Maskell et al., 2007) by describing the specific mechanisms by which sequential learning occurs. In this way, the classic approach is complemented by focusing on firms seeking Ricardian rents and reconfiguration advantages (Antras & Helpman, 2004). Second, this paper also shows that alternative ownership structures produce variations in internationalization paths, while the IP model portrays organizing structures as mere steps, referred to as the 'establishment chain' (Johanson & Vahlne, 1990, 2009). Third, this paper also contributes to the PF literature by displaying how financial aspiration levels interact with ownership modes to define distinctive patterns of geographic expansion in offshoring projects, below and above financial aspirations, and by showing the connection between operational aspirations and functional diversification. Fourth, this study contributes to the issue of offshoring maturity (Carmel & Agarwal, 2002; Manning et al., 2008) by exploring it from a behavioural perspective that illuminates the connection of how the outcome of a previous offshore project becomes input for the next one.

4.3 Literature Review

4.3.1 From market-seeking to other internationalization motives

The IP model is one of the dominant paradigms of the International Business literature. Intellectually, the model grew under the academic influence of the foundational works of Cyert and March (1963) and Penrose (1959), while empirically appreciating the steps of Swedish firms expanding internationally in the 1970s. The IP model is built upon the relation between experiential learning and commitment within a particular geography. It argues that firms develop their international operations incrementally, following a strategy of uncertainty reduction that involves initial overseas activity in relatively safe environments while compromising few resources, and then expanding their level of

commitment as enhanced learning reduces the risks associated to market uncertainty (Forsgren, 2002); a pattern known as the "establishment chain". The IP model considers experiential learning as the critical resource *"for perceiving and formulating opportunities"* (Johanson & Vahlne, 1977, p. 28). Recent revisions of the model have considered faster internationalization paths that rely on network relations or the acquisition of external resources to access knowledge previously inexistent in the organization (Johanson & Vahlne, 2009).

In its different forms, the IP Model has been extensively analyzed and critically discussed (e.g. Andersen, 1993; Forsgren, 2002; Petersen, Pedersen, & Sharma, 2003). As the paper is concerned with the application of the IP model to upstream and support activities only, I focus on two characteristics of the model that are particularly puzzling when explaining internationalization in that context: i) its reliance on market-specific knowledge to explain progress in the establishment chain; and ii) the idea that arm's-length internationalization is an initial instrument eventually replaced by internal ownership modes as commitment increases.

First, within the dominion of experiential learning, internationalization process theory distinguishes between two types of knowledge: general knowledge, which refers more to the structures, processes, and routines that consolidate internationalization efforts, and market-specific knowledge, which is country or region specific and refers to the institutional arrangements and competitive conditions in those geographies (Eriksson, Johanson, Majkgard, & Sharma, 1997), but implicitly weights specific knowledge above general knowledge as a driver of the process (Petersen et al., 2003). This assumption of the model fails to capture the heterogeneity in the processes of internationalization, particularly as firms increasingly adopt differentiated modes of ownership, thus signalling deeper differences in managerial attention and learning goals. I argue that this focus on market-specific knowledge originates in the downstream focus of the model, as it underlines the importance of knowledge about specific "characteristics of the individual customer firms and their personnel" (Johanson & Vahlne, 1977, p. 28). This is

not necessarily the case in the internationalization of upstream and support activities, as those activities are driven by logics of efficiency that, in many cases, are governed by regional or global, rather than national logics (Buckley & Ghauri, 2004).

Second, the internationalization pattern described in the IP model suggests that while firms may start the process through arm's length or hybrid relationships, these relations are later replaced with firm-owned structures as their level of commitment increases (Johanson & Vahlne, 1977; Vahlne et al., 2011). Upon its framing, the IP model assumes firms will move toward ownership organization modes when their internationalization develops (i.e., when they obtain good performance and good future prospects). This implies a deterministic pattern of activity internationalization (J. F. Hennart, 2009), one that does not reflect the fact that, in reality, operations allow a much richer characterization of organizing modes, such as mode packaging (multiple modes in a given location), within mode adjustments (changes that preserve the basic organizing structure), and mode changes (Benito et al., 2009).

Contrary to the description implied by the IP model, empirical research in the area of upstream and support activities shows that establishment and control decisions are intertwined and path dependent (R. Mudambi & Venzin, 2010) and that internalization is not necessarily the outcome as they expand their experience in a given destination. Instead, upstream and support activities often follow the opposite path, moving from internally managed to externally run foreign operations (Gospel & Sako, 2010). This phenomenon is rooted in an extensive body of literature that has explored the advantages that the use of alternative organizing modes confer in the management of value chains , in terms of flexibility in sharing the productive capacity, opportunities for co-specialization, learning and cross-fertilization, and modularization benefits (Gereffi et al., 2005; Jacobides, 2005; Kedia & Mukherjee, 2009).

In sum, the discussion suggests that neither the original Uppsala process theory (Johanson & Vahlne, 1977, 1990) nor its extensions (Johanson & Vahlne, 2009; Vahlne

et al., 2011) can fully describe the conditions imposed by internationalization in upstream and support activities as it requires greater attention to the processes in play during the transformation to network architectures that pursue global reconfiguration rather than replication of activities across countries (Barkema & Drogendijk, 2007; Malnight, 1996). This is critical in a context where scholars are calling to consider activities occurring beyond a single legal entity (R. Gulati et al., 2012). This is also critical where the internationalization of sourcing is a growing trend (Beugelsdijk et al., 2009; Lewin & Volberda, 2011; UNCTAD, 2013) and is increasingly affecting not only typical Multinational Corporations (MNCs), but also firms with a pre-eminently local customer base, which are equally seeking efficiencies by internationalizing upstream or support activities.

4.4 Hypothesis Development

This section develops a framework to explore the mechanisms driving geographical and functional expansion in upstream and support activities. In order to do so, it combines the IP model with PF theory to address the shortcomings developed in the previous section. PF theory is a strong complement to the IP model, as both approaches share close areas of research (i.e., firm-learning processes) and compatible assumptions (i.e., rooted in the behavioural tradition). As a preliminary step, I review intrinsic differences involving expansion in captive and outsource arrangements. For starters, the results from Chapter 3 of this thesis suggest an important distinction between development trajectories: in outsourced offshoring arrangements, the limited involvement of a firm's assets in a given environment enables the firm to achieve a higher degree of geographical diversification, which facilitates its ability to reap comparative advantages from a larger set of destinations. In contrast, firm-owned structures are likely to pursue efficiency by relying not only on the logic of comparative advantage, but also by the appropriation of synergistic benefits (i.e., economies of scale and scope) obtained from the joint allocation of activities.

The distinction mentioned in the previous paragraph presents strong implications for a process perspective in the internationalization of a firm's upstream and support activities, as it suggests that the expansion trajectories under in-house and outsourced offshoring are likely to differ. That is, *ceteris paribus*, firms developing captive offshoring may perceive greater benefits from expanding functionally within an existing location rather than by searching for a new one. Alternatively, firms performing outsourced offshoring are expected to allocate subsequent projects in geographic locations where comparative advantages prevail. However, a glimpse of the companies included in this study suggests that, while the development patterns suggested above are slightly dominant, in the long run, firms internationalizing upstream and support operations have also adopted unexpected patterns, such as the geographical expansion of in-house operations and functional concentration in a single location by firms adopting outsourced offshoring models. Table 4.1 includes the full expansion patterns reported by the 230 firms included in this paper (data calculated over a total of 744 projects).

Table 4.1: Expansion trajectories of firms in the ORN database

	Number of Firms	*% implementing multiple functions*		*% implemented in multiple locations*
		any location	*single location*	
Firms reporting only captive projects	87	56.3%	42.0%	29.9%
Firms reporting only outsourcing projects	125	39.2	29.9	44
Firms reporting both types of projects	18	77.8	50.0	100

The data included in this table leave some questions unanswered: why would 30% of the firms reporting captive expansion actively pursue geographical expansion trajectories? Why would 30% of the firms expanding mainly through outsourced offshoring arrangements disregard potential comparative advantages and expand within a single location? I suggest that part of the answer lies in the learning mechanisms that occur as

firms develop their internationalization processes. Nevertheless, the focus on multi-country replication and market-specific knowledge, which are driven by the IP model, leave an unclear notion of the particular learning considerations derived in the geographical or functional expansion trajectories in upstream and support processes. Using this setting as a starting point, this hypothesis development section focuses on the learning mechanisms that operate within internationalization processes, adopting PF theory for a better understanding of the processes by which additional knowledge is incorporated to redefine the firm's internationalization trajectory.

4.4.1 Geographic expansion in firm-owned projects

Consistent with the IP model, the PF literature focuses on organizations learning from experience (Cyert & March, 1963; Greve, 1998). Its arguments however, do not focus on the process of the accumulation of experience, but rather on how simple rules predict the initiation of processes of organizational search and change. PF theory describes firms as goal-directed systems, where managers adopt decisions, depending on the attainment of their performance aspiration level (Bromiley, 1991; Lant, 1992). An aspiration level represents *"the smallest outcome that would be deemed satisfactory by the decision maker"* (Schneider, 1992, p. 1053). These aspirations are defined in a world of bounded rationality, where individuals attempt to simplify complex decisions into discrete measures of failure or success (March & Simon, 1958), which are generated and influenced on the basis of experience and social reference groups (March, 1988). In the event that organizational performance falls below an aspiration level, managers have two alternatives: either search for solutions that raise the level of performance, or if the gap is deemed insurmountable, lower the firm's aspirations (Bromiley, 1991).

One of the key insights derived from PF theory is that there is a significant divide between the internationalization behaviours of high- and low-performing entities, as a firm attaining its aspiration level is more likely to sustain a course of action, whereas one that fails to attain it is more likely to adopt processes of organizational change, which may as well increase the risk-taking profile of the firm (Bromiley, 1991). This notion

suggests that the geographic expansion of upstream and support activities is more nuanced than what the IP model describes. Certainly in the case of firms implementing captive offshoring, the achievement of profitability aspirations will energize the exploitation of opportunities within a given location; however, when a pre-existing project fails to fulfill the aspirations that may elicit geographical expansion behaviours, firms will attempt to find a suitable location where the process can be successfully executed.

I argue that captive offshoring initiatives whose achieved performance is below their aspirations will be more likely to geographically expand, even when the new projects use the same knowledge base or belong to the same business process. Two behavioural factors support this logic. First, there is a learning factor: as described in the IP model, in-house organizations accumulate knowledge that can be used to implement a better location selection strategy; in particular, organizations may be more aware of the hidden costs of offshoring (Larsen et al., 2013; Stringfellow, Teagarden, & Nie, 2008) and may use their experience to improve search processes, and hence find better locations. Second, there is a commitment factor: under pressure for organizational change, combined with the need to justify an existing course of action (i.e., internationalization of upstream and support functions), decision-makers are more likely to search for new locations rather than completely stop offshoring expansion. Thus, firms with in-house offshoring that have failed to achieve profitability aspirations are more likely to find new geographical locations rather than expand their commitment in the existing location. Hypothesis 1 summarizes the reasoning, as follows:

> *Hypothesis 1*. Firms whose in-house offshoring activities attain financial performance above (below) aspiration levels will be less (more) likely to expand geographically.

4.4.2 Geographic expansion in outsourced projects

A critical point, however, is to analyze whether the logic of Hypothesis 1 can be extended to analyze the geographical expansion in outsourced offshoring initiatives. An initial

distinction was outlined in Chapter 3 of this thesis by describing the initial advantages that exist for outsourced arrangements to locate operations according to comparative advantage. In addition, I argue that there is a significant difference between the learning processes in captive and outsourced offshoring: while the learning processes in fully owned arrangements are likely to focus on market-specific knowledge, the learning in outsourced processes is centered on experiences that are non-market specific (i.e., partner selection, contract management, and supplier management). This insight emerges from the nature of the problemistic search processes described not only in PF theory, but also in general learning theory. Search processes are described as "myopic," which implies that organizational efforts to address problems are likely to occur in the vicinity of the specific issue or in areas where the firm possesses more knowledge (Argote & Greve, 2007). In the case of outsourced offshoring arrangements, failure to attain the desired performance in outsourced settings is likely to cast doubt on the supplier's organization rather than on the country's conditions.

As differences in the learning and search processes between firms pursuing fully owned initiatives versus those pursuing outsourced offshoring initiatives suggest major dissimilarities in their geographical diversification behaviour, I use PF logics to understand geographical diversification for outsourced initiatives: firms whose results are above the aspiration levels are not expected to modify their risk taking approach (Greve, 1998). In the case of firms developing outsourced offshoring initiatives, this implies an understanding of the nature of the structural risks of outsourcing in comparison with fully owned governance modes, as in interfirm relations, where the main risks lie in finding and learning about a partner rather than in the geographic expansion process. Two conditions support this situation: first, issues of imperfect information about the potential partners' behaviour and capabilities create significant risks and uncertainty in the initial establishment of exchange relations (Oxley, 1997). Given the dependency on a partner's organization, trust building becomes a critical issue for a firm. In particular, trust is composed of social and structural characteristics that make it a "costly and time-consuming process" (Madhok, 2006, p. 7). Similarly, organizations need time to develop

an accurate assessment of the partner's capabilities and to develop common knowledge to make a successful relation (Johanson & Vahlne, 2009).

Second, by entering into outsourcing arrangements, a firm facilitates its internationalization process, as it can take advantage of its relationship capital and the use of other firm's experience to reach suppliers in different institutional settings (Kedia & Mukherjee, 2009). Beyond this, outsource offshoring removes or minimizes costs associated with the diversification of international operations such as: the direct management of country rules and regulations (Lu & Beamish, 2004), the exposure to different institutional environments (J. Gooris & C. Peeters, 2014) and the organizational politics emerging in geographically distributed settings (Ansari et al., 2010), while increasing the advantages of specialization and optimal allocation (Contractor et al., 2010). All this suggests that additional geographical expansion under outsourced arrangements does not necessarily indicate an increase in the risk profile of the firm expanding through these types of arrangements.

In conclusion, the incentives for geographic expansion in outsource offshoring initiatives are significantly different from owned firms' initiatives. I argue that firms internationalizing upstream and support activities under outsource arrangements and obtaining results above their aspiration levels are more likely to deepen their geographical expansion. Those firms are expected to possess strong procedures for the management of suppliers and are likely to enjoy satisfactory outsourcing relations. Moreover, those firms are expected to increase their experience to such a level that it allows them to incorporate additional functions that they may not have originally considered or may have perceived as too risky during their initial establishment (Maskell et al., 2007). The ability to "fine slice" firm activities and a limited exposure to the particular set of country rules and regulations increase the likelihood of geographic expansion within a business area. Hypothesis 2 is stated, as follows:

Hypothesis 2. Firms whose outsourced offshoring activities attain financial performance above (below) aspiration levels will be more (less) likely to expand geographically.

4.4.3 Functional diversification

Besides the study of motivations triggering geographic expansion, this analysis seeks to shed light on the conditions leading to upstream and support activity expansion within a given location. The IP model describes growth in a given location occurring in small incremental steps, with the current activities as the prime source of experience (Andersen, 1993). In it, the motivation for expansion is fuelled by the expectation of higher returns, but is bounded by a "tolerable risk frontier" (Johanson & Vahlne, 1977, p. 30). The risk frontier is minimized through experiential learning, familiarity with the host country's institutional environment, growth in the firm's total resources or the adoption of more aggressive risk behaviour (Johanson & Vahlne, 1977). The existence of this risk frontier suggests that firms are likely to locate less projects than what may be economically sound, not only given their lack of experience perceiving business opportunities (Maskell et al., 2007), but also because they postpone critical resource commitments until they have sufficient knowledge to tolerate that risk (Petersen et al., 2008). Missing from the IP framing, though, is the explicit theorizing about the key factors that trigger functional expansion in a given location, in particular, given the network orientation of upstream and support activities (Malnight, 1996).

The concentration of talent pools and reduction of coordination difficulties emerges as a powerful reason to consolidate functional areas or business processes around particular locations (Manning et al., 2008). In these contexts, firms are likely to pose a lot of attention on the fulfillment of operational aspirations, because failures in a highly interdependent and tightly coupled activity are likely to produce negative implications that extend far beyond of a single site or region (Kumar et al., 2009). Due to these characteristics, empirical analyses have shown that firms pursuing offshore operations are

heavily concerned about finding the right mix of talent and cost advantages rather than the pure arbitrage considerations (e.g. Doh et al., 2009; Manning et al., 2008), and place considerable attention to risks of service quality and operational efficiency in their current offshoring operations (Lewin, Perm-Ajchariyawong, & Russell, 2011).

Due to the interdependent nature of upstream or support activities, I argue that operational rather than profitability indicators will be correlated with a site's progress in the established chain. Three conditions support this reasoning: first, the IP model suggests that a firm adopts country expansion decisions using its current experience as the prime decision element for subsequent decisions. Second, as capabilities are hard to measure, scholars agree that firms tend to use past performance as an imperfect indicator of a site's ability to adopt new challenges (Birkinshaw & Hood, 1998; Denrell, Arvidsson, & Zander, 2004). Third, the sequential interdependence described in the previous paragraph suggests that in the case of upstream or support activity offshoring, firms may give priority to operational goals rather than to mere profitability goals as the necessary condition to consider a given site as candidate for receiving additional activities. Hence, hypothesis 3 is established, as follows:

> *Hypothesis 3*. The better a site fulfills a firm's operational performance aspirations, the more likely the firm is to increase its scope of functions performed in that site.

4.5 Data and Methods

The data used in this analysis was collected by the Offshoring Research Network (ORN) and secondary sources data (on country wages and geographical distances). The ORN is a global network of universities and researchers that study trends in the offshoring of technical and administrative functions (e.g. Larsen et al., 2013; Lewin & Peeters, 2006; Massini et al., 2010). Among other projects, the ORN collects two major annual surveys, a corporate client survey and a service provider survey, that provide fine grained data

about the offshoring of administrative and technical (A&T) functions[8]. In this paper, while I draw mainly from the information collected in the corporate client survey, I incorporate information on task interdependencies on each function taken from the service provider survey. From the corporate client survey, I use the information obtained from the surveys in the period 2005-2012 to capture statistics about the different geographies, organizing modes and types of functions used by firms in their startup period and compare them with the same outcomes in the follow up period. In addition, I use information on firm size, home country and host locations, initial year of offshoring processes, launch year of a given project, the type of function offshored, the level of savings obtained and targeted in each implementation, the time required for an implementation to achieve its service level goals, and the existence of a firm's overarching offshoring strategy. I combine the ORN collected data with independent measures of average country wages from the International Labor Organization (ILO), geographical distance, calculated from the Center for Information and Research on the World Economy (CEPII) (Mayer & Zignago, 2011). The combination from different sources plus the focus on variables measuring factual data addresses issues derived from survey measurement problems, in particular, the common method variance problem (Chang et al., 2010; Podsakoff & Organ, 1986)[9].

Empirically, the accumulation of knowledge and learning presents a challenge to distinguish to which extent each experience gathered in different points in time weighs on particular internationalization decisions. Hence, I consider only the first and second implementation years in which a firm launched offshore implementations, regardless of the number of implementations performed within a given calendar year. A working

[8] A&T functions offer advantages of comparability across firms and industries, in addition, the relative degree of standardization among activities allows for a clear-cut categorization of particular functions into business areas (e.g. finance and accounting into Business Processes and software development into Information Technology).

[9] The Harman single factor was run as a post statistical control for common method bias (Podsakoff & Organ, 1986). It shows four eigenvalues > 1, with the largest one explaining 19% of the total variance. This supports validity of the dataset.

assumption is that implementations within a calendar year are simultaneous and do not allow for experiential learning to emerge from their outcomes, while implementations reported in different calendar years allow for performance feedback to occur. By excluding projects executed beyond the second period from the analysis, I remove confounding effects related to the allocation of contributions that each of the experiences have on producing a particular internationalization path.

In this analysis, the unit of observation is the offshore implementation, defined as a particular function offshored to a given host country in a specific year. The sample used in this study analyzes the development and outcomes of 348 A&T projects performed by 230 firms headquartered mainly in the US and Western Europe for the period 1995-2012 (Table 4.2 provides detailed information of the firms and projects included). From the 230 firms included, 115 firms engaged in follow-up implementations and 115 did not.

Table 4.2: Sample Descriptive Statistics

A. Distribution of Implementations by Function and Location

Business Functions	*%*	*N*	*Locations*	*%*	*N*
BPO:	*34%*	*119*	India	48%	167
Call Centers	12%	41	Latin America	11%	39
Engineering Services	8%	29	Eastern Europe	11%	40
Finance and Accounting	12%	41	Rest of Asia	9%	31
Human Resources	2%	8			
ITO:	*35%*	*123*	Western Europe	8%	29
IT Infrastructure	27%	93	China	7%	23
Analytical Services	3%	10	US	3%	11
Legal Services	1%	3	Australia	1%	4
Marketing and Sales	5%	17			
KPO:	*30%*	*106*	Africa	1%	2
Product Design	3%	10	Middle East	1%	2
Procurement	5%	18			
R&D	7%	24			
Software Development	16%	54			
Total	*100%*	*348*	Total		348

B. Firm level information

Headquarters Location	*%*	*N*	*Firms' internationalization paths*	*Freq.*	*Percent*
US	60%	137	Firms implementing projects in year one	230	100%
Western Europe	38%	87	-firms with multiple locations in year one	21	9%
Australia	1%	3	-firms with multiple functions per location in year one	26	11%
India	1%	2	Firms w/ a second implementation round	115	50%
Asia	0%	1	-firms with geographic expansion within an functional area	81	35%
			-firms with functional diversification in a host country	52	23%
Total	100%	230	Total	230	

4.5.1 Estimation Models

The hypothesis are tested by two different models: a regular probit and a bivariate probit model with selection, also known as Heckman model (W. P. Van de Ven & Van Praag, 1981). The Heckman model is used to address the concerns about endogeneity in the selection of an organizing mode and its impact on the firm's internationalization path (Reeb, Sakakibara, & Mahmood, 2012; Shaver, 1998). The adoption of ownership

modes, is not random and includes information about differences in capabilities and interests that have made the firm adopt a particular form or organization over another (Masten, 1993). As stressed by Shaver (1998) the implications of endogeneity do not only extend to the comparison among alternatives (e.g. when comparing among captive and outsource choices) but also affects the statistical properties of the estimates within categories, unless a proper test suggests so. The bivariate model requires two stages: in the first stage, I estimate the probit model of the firm by adopting either a captive or an outsource model. In the second stage, a new probit model calculates the regression proposed, adjusted with the first-stage results. Both models are corrected with White-Huber sandwich estimators to account for clustered observations (Wooldridge, 2002).

4.5.2 Variables included in the selection model

Outsourcing is the dependent variable in the first-stage model. Outsourcing takes a value of zero when the function is executed by a captive operation (i.e., a fully owned subsidiary offshore undertakes the activity), and one when the mode of operation includes a third-party operator. To predict the outsourcing decision, the selection model includes variables inspired in the transaction cost economics literature or TCE. TCE describes conditions of frequency, uncertainty and asset specificity as drivers of the entry (i.e. ownership) mode decision (E. Anderson & Gatignon, 1986; Williamson, 1985). In order to evaluate the aspects described in TCE, three variables are proposed here:

(i) *Frequency* which is approximated with a variable describing the degree of interdependency that an activity has with processes in the client organization (Variable name: *task interdependency*). Functions with higher levels of interdependence will require on average more frequent interactions among partners than activities with lower degrees of interdependence. The assumption here is that activities requiring more frequent exchanges with the focal firm's activities are more likely to be kept under the focal firm's control. A proxy variable of the frequency of interaction was obtained from the Service Provider Survey designed by the ORN. Its values correspond to the average

assessment of interdependency for each of the 12 functional operations among 481 service providers of A&T operations.

(ii) *Uncertainty* in the internationalization process has been related to two sources: first the unpredictability emerging from the host country environment and second, the inability to coordinate and control far flung operations (E. Anderson & Gatignon, 1986). In the case of sourcing activities, while the uncertainty related to the local market is not a serious concern, the potential for communication and coordination issues remain a critical issue. Once face-to-face communication is substituted by other communication modes (email, phone conversations) and interactions will lose some of their contextual richness (Kumar et al., 2009). The variable *Geographical distance* is here adopted as an indicator of uncertainty, as distance creates issues of asymmetric information that are dealt better under entry modes that offer a high level of control (J. Gooris & C. Peeters, 2014). The calculation of distance includes dyads of countries and uses latitudes and longitudes of the most populous cities/agglomerations in each country (Mayer & Zignago, 2011).

(iii) *Asset specificity* not only refers to physical assets, but also incorporates specialized skills or processes that are idiosyncratic to the organization (Williamson, 1985). The measure of specificity included in this analysis focuses on the dimension of procedural asset specificity, which is used to analyze specific investments in the service industry (Zaheer & Venkatraman, 1994). Procedural asset specificity refers to the degree to which activities and functions have to be tailored to firm's specific processes rather than used as standardized commodities (Vivek, Banwet, & Shankar, 2008). As a measure of this construct, I use the a (1-5) Likert in the ORN corporate client survey's question which refers to the extent to which "the decision to offshore this part of the function of the firm's global strategy" as alternative to reasons such as attaining cost savings, accessing qualified personnel or competitive pressure reasons. The logic is that operations that rank relatively high on the firm's global strategy, rather than the other reasons mentioned above, are less likely to be outsourced. The name of the variable on the tables is: *Function offshored as part of the global strategy of the firm.*

Finally, the selection models also include the control variables incorporated into the expansion models. However, three of the variables included in the estimation (i.e., *financial aspiration fulfillment, operational aspiration fulfillment and reporting interval)* are not included in the selection model because of theoretical incompatibility (e.g. Shaver, 1998).

4.5.3 Variables included in the expansion models

Two independent, but structurally similar models are proposed. In the first one, the dependent variable is *geographic expansion,* which is a dichotomous choice that equals one if there is an implementation reported by the firm in the follow-up period within the same industry segment in a different country, and zero otherwise. Three industry segments are defined: Information Technology Offshoring (ITO), Business Process Offshoring (BPO), and Knowledge Process Offshoring (KPO). As shown in Table 4.1, each of the 12 functions is part of a unique industry segment. The effect of each implementation in the startup and subsequent period is analyzed, regardless the number of projects performed by the firms in each of the periods.

The dependent variable in the second expansion model is *functional diversification,* a dichotomous choice that equals one if there is an implementation reported by the firm in the follow-up period in any of the industry segments in the same country of the original implementation, and zero otherwise. Analogous to the geographic expansion variable, firms launching multiple implementations in the same country (either in the start-up or the follow-up year) have considered all of these projects. In the event that multiple start-up year projects match the same location criteria, one subsequent project will imply that all of those matching projects are coded as one.

4.5.4 Independent Variables

Financial aspiration fulfillment: Extant literature has used two basic methodologies to measure this construct. The first approach is applied in cases when financial records are publicly available, and it centers on the evaluation of a financial aspiration gap as either

the comparison of the current period with firm historical performance (e.g., moving averages of past periods) or the comparison against group measurements (e.g., industry averages) on variables such as return on assets, equity or sales (e.g. Greve, 1998; Lant, 1992). A second approach, which is the one followed here, has been pursued when public information is not available, and proposes the creation of an aspiration fulfillment measurement through survey mechanisms (e.g. Petersen et al., 2008). In the present study, the proposed measure compares the extent to which firms are able to obtain levels of savings above or below their targets on their initial implementation. It is calculated by the following formula:

$$Financial\ aspirations\ = (\%\ of\ cost\ savings_{actual}\ - \%\ of\ cost\ savings_{expected}\ )$$

Both the percentage of cost savings achieved and the targeted cost savings are obtained from the ORN corporate client survey. Cost savings are measured as the percentage of improvement achieved on the target implementation during the last fiscal year, and as the savings target before the implementation occurred. The variable *financial aspiration fulfillment* is not included in the selection model because firms are not expected to possess such information before the initial project is implemented.

Time to operational goals: This measure seeks to assess the ability of firms to achieve their aspirations with respect to operational standards. It measures the waiting period necessary for an offshored function to reach its targeted levels of service. This variable is measured in five different categories: *Category 1 = up to 1 month; Category 2 = between 2 and 5 months; Category 3 = between 6 and 12 months; Category 4 = more than 12 months; Category 5 =never achieved targeted service levels.* By adopting this operation performance metric, the study maintains its consistency with strategic research by focusing on efficiency-driven indicators (Venkatraman & Ramanujam, 1986). This variable is not included in the selection model, given that firms are not able to obtain feedback on operational aspirations before the project is implemented.

In the expansion model, the variable *outsourcing* is the estimated version of the outsourcing variable in the first stage of the model. In this model, the data of the original variable was replaced with the predicted version as an instrument to avoid issues of endogeneity.

Controls: This analysis controls for several variables that are expected to influence the geographical or functional diversification decisions. The first pair of control variables seek to differentiate between growth patterns that involve approaches following either "toe in the water" paths or "concentrated internationalization bursts" (Maitland, Rose, & Nicholas, 2005, p. 435), as they may refer to different architectures, experiences or learning processes. In this case, I created a dichotomist variable identifying the firms that started their internationalization in more than one location in their initial year of operation (variable name: multiple geographies) and then another separate dichotomist variable identifying the firms that started their internationalization with multiple processes in one location in their initial year of operation (variable name: multiple functions). Second, a control for firm size —measured as the natural logarithm— is included. Third, a dichotomous variable is included, indicating whether or not the firm possesses a general offshoring strategy to guide its decisions across divisions and functions (yes =1). Previous studies have found a significant relation between strategy and offshoring performance (Massini et al., 2010). Here, I want to make explicit the relation between the existence of a given established strategy and the trajectory of international sourcing activities.

Fourth, this study includes a variable that controls the time elapsed between the point of implementation and the year when the survey was taken (variable name: report interval). This seeks to control those cases where a subsequent implementation is not observed due to right censoring. Fifth, the analysis also incorporates country-level controls to remove the impact of differences among locations. In this case, the wage ratio between host and home countries' salaries is included to correct for environmentally driven effects that motivate diversification paths. The data on wages include information on average salaries

in dollars by country per year from the International Labor Organization (ILO). Other country-level variables, such as stability of the institutional environment and education levels, were included in the robustness checks, but were later removed either because of their lack of impact in the regression or because their correlations with the wage levels for the dataset were included.

4.6 Results

Descriptive statistics and a correlation matrix for the 348 implementations are presented in Table 4.3. The low correlation between the independent variables suggests that no potential multicollinearity problems exist among the independent variables of the model, as they are well below the standard threshold of 0.5 (Hair, Anderson, Tatham, & Black, 1998). Among the control variables, there are also only two exceptions to this threshold. The first exception exists between the variables *multiple geographies* and *multiple locations*, which are not even included in the same regression analysis, instead, the multiple geographies variable is used in the analysis of changes in geographies, and the multiple locations variable in the analysis of changes in the functions. The second exception occurs between the control variables *geographical distance* (included only in the selection model) and *host country wage.* As those are only used to generate an instrumental variable in the main model, they create no issues on the estimation models. Therefore, there is no evidence of multicollinearity issues affecting the dataset.

Table 4.3: Descriptive Statistics and Correlation matrix (N=348)

	Variable Name	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)	Geographic expansion	1													
(2)	Functional diversification	-0.09	1												
(3)	Financial aspiration fulfillment	0.06	-0.02	1											
(4)	Time to operational goals	-0.1†	-0.14*	-0.21**	1										
(5)	Outsourcing (yes=1)	0.05	-0.09†	-0.07	-0.02	1									
(6)	Multiple geographies (in period 1)	0.44**	0.12*	0.04	-0.08	0.03	1								
(7)	Multiple functions (in period 1)	0.39**	0.22**	0.04	-0.13*	-0.01	0.60**	1							
(8)	Firm possesses an offshore strategy (1=yes)	-0.22**	0.07	0.01	0.09	0.03	-0.15**	-0.17**	1						
(9)	Firm size (log)	0.17**	0.14*	0.00	0.1†	0.12*	0.19**	0.15**	0.11*	1					
(10)	Host country wage	0.16**	-0.16**	0.06	-0.08	-0.25**	0.01	-0.03	-0.08	-0.20**	1				
(11)	Report Interval	0.35**	0.13*	-0.03	-0.01	-0.07	0.15**	0.29**	0.10†	0.13*	0.02	1			
(12)	Task interdependence	-0.13*	0.02	0.03	0.01	-0.16**	-0.11*	-0.03	0.06	0.01	0.09†	-0.03	1		
(13)	Function offshored as part of firm's global strategy	0.08	0.13*	0.12*	0.03	-0.22**	0.01	0.13*	0.07	0.03	0.11*	0.11*	0.03	1	
(14)	Geographical distance (home-host countries)	-0.06	0.18**	-0.06	0.05	0.22**	0.07	0.05	0.11	0.23**	-0.65**	-0.01	-0.09	-0.04	1
	Mean	0.329	0.187	-6.045	3.111	0.58	0.166	0.201	0.316	7.069	9.224	4.251	3.637	3.134	8.766
	Std. dev.	0.47	0.391	17.649	1.096	0.494	0.372	0.401	0.465	3.274	0.757	3.453	0.136	1.503	1.015
	Min. values	0	0	-100%	1	0	0	0	0	0.693	8.279	-1	3.439	1	5.153
	Max. values	1	1	65%	5	1	1	1	1	12.737	11.071	16	4	5	9.845
** p<0.01, * p<0.05, † p<0.1															

Geographic Expansion Results: Geographical expansion within a business area is the most common internationalization sequence shown by firms under analysis. Table 4.X reports that 35% of the firms included on the dataset (70% of the firms that reported a follow up implementation) have undertaken a geographical expansion pattern within an average of 5 years after their initial offshoring attempt. The ubiquity of this growth path in the dataset reflects the distinctive nature of value chain internationalization when compared with market seeking motivations, as in this case firms seem to be more concerned with the quick establishment of a broad footprint, rather than expanding its position in a given market as described in the IP model.

With respect to the determinants of geographical expansion, Table 4.4 presents the results for captive operations and Table 4.5 for outsourced operations. In both tables, columns 1 and 2 present the results of the probit model with clustered robust standard errors (CRSE) and columns 3 and 4 the Heckman probit model, which controls for the impact of selection in the analyses. In the case of captive operations, Model 2, the Probit CRSE is used to test the hypothesis because the Wald test of independence among the selection and expansion equations is not rejected at 5% of significance. The opposite situation occurs when analyzing Table 4.5 In this table I will focus the analysis on Model 4, as the Wald test of independence rejects the null hypothesis ($\rho=0$), indicating the validity of incorporating selection effects when analyzing the expansion in outsourced operations.

Table 4.4: Estimates of the likelihood of geographic expansion in the same functional area1/ in captive operations [2]/

		DV: Geographical Expansion			
		Probit		Heckman Probit	
		(1)	(2)	(3)	(4)
Expansion Model					
	Financial aspiration fulfillment (H1)		-0.02*		-0.01†
			(0.03)		(0.09)
	Time to operational goals		-0.16		-0.19†
			(0.20)		(0.09)
	Multiple geographies (per.1)	0.45	0.89	0.29	0.66†
		(0.32)	(0.13)	(0.48)	(0.06)
	Firm possesses an offshore strategy (1=yes)	-0.63†	-0.47	-0.49	0.10
		(0.05)	(0.11)	(0.24)	(0.73)
	Firm size (log)	0.20**	0.19*	0.21**	0.12*
		(0.00)	(0.01)	(0.01)	(0.02)
	Host country wage	0.61**	0.78**	0.61	0.31
		(0.00)	(0.00)	(0.28)	(0.12)
	Report interval	0.14**	0.16**	0.12*	0.08*
		(0.00)	(0.00)	(0.04)	(0.01)
	Constant	-8.31**	-9.67**	-8.09	-3.31
		(0.00)	(0.00)	(0.26)	(0.12)
Selection Model DV: Probability of a captive model in first implementation					
				1.51*	1.20*
	Task interdependence			(0.04)	(0.02)
	Function offshored as part of firm's global strategy			0.19*	0.19**
				(0.02)	(0.00)
	Geographical distance (home-host countries)			-0.14	-0.06
				(0.27)	(0.52)
	Multiple geographies (in period 1)			-0.01	0.02
				(0.96)	(0.94)
	Firm possesses an offshore strategy (1=yes)			-0.06	-0.10
				(0.82)	(0.60)
	Firm size (log)			-0.04	-0.05
				(0.28)	(0.12)
	Host country wage			0.24	0.32*
				(0.14)	(0.01)
	Constant	-8.31***	-9.67***	-6.94**	-7.27***
		(0.00)	(0.00)	(0.01)	(0.00)
	Wald test of indep. Eqns. (rho=0): chi2:			0.04	2.96†
				(0.83)	(0.08)
	Observations	157	149	348	340
	Log likelihood	-66.41	-54.94	-272.7	-249.9
	DF	5	7	12	14
	Chi2	34.17	28.67	13.74	22.07
	Robust pval in parentheses ** p<0.01, * p<0.05, † p<0.1				

[1]/ Three functional areas or business areas are included in the dataset: Information Technology Offshoring (ITO), Business Process Offshoring (BPO) and Knowledge Process Offshoring (KPO). Activities within each functional area are presented in Table 4.2.

[2]/ The selection model predicts the probability of a captive model, rather than outsourcing, (see Shaver 1998, p. 582).

The results of Table 4.4 offer support to Hypothesis 1. As anticipated, there is a significant negative relation between the achievement of financial aspirations in captive operations and the adoption of geographical expansion paths. This suggests that while a deeper commitment in a given host country may offer advantages such as: scale and scope economies, easier transmission of knowledge and lower increases in coordination costs under fully owned operations (Contractor et al., 2002; Lu & Beamish, 2004), a failure to achieve financial aspirations triggers changes in the firm's international footprint. At the same time, the results of model 2 suggest that the fulfillment of operational goals has no significant implications in the patterns of geographical expansion in captive operations.

Table 4.5 presents the results for the likelihood of geographic expansion (for a given business area) in outsourced operations. Column 4 offers strong support to Hypothesis 2, which states the positive relation between financial aspiration achievement in offshore arrangements and the geographical expansion in a business area. Hence, this offers evidence that geographical expansion through non-ownership modes is more intense for firms that have fulfilled their objectives, as those are the ones that have greater incentives for deepening their global footprint. This point presents a novel and important finding: Governance mode moderates the effect that the fulfilment of an aspiration path has on the geographical expansion of a firm. As suggested in the theory development section, this moderation effect emerges not because of a contradiction in the PF argument, but from the myopic characteristics of problemistic search processes (Argote & Greve, 2007). Furthermore, Tables 4.3 and 4.4 find no relation between operational measures of performance and patterns of geographical diversification in captive and outsourced operations.

Table 4.5: Estimates of the likelihood of geographic expansion in the same functional area[1/] in outsourced operations

		DV: Geographical Expansion			
		Probit		Heckman Probit	
		(1)	(2)	(3)	(4)
Expansion Model					
	Financial aspiration		0.03**		0.02**
	fulfillment (H2)		(0.00)		(0.00)
	Time to operational goals		-0.06		-0.05
			(0.62)		(0.59)
	Multiple geographies	0.45	2.16**	1.56**	1.53**
	(per.1)	(0.32)	(0.00)	(0.00)	(0.00)
	Firm possesses an offshore	-0.63†	-0.97**	-0.79*	-0.72*
	strategy (1=yes)	(0.05)	(0.00)	(0.04)	(0.01)
	Firm size (log)	0.20**	0.01	-0.03	-0.01
		(0.00)	(0.74)	(0.44)	(0.74)
	Host country wage	0.61**	0.26	0.51**	0.51**
		(0.00)	(0.15)	(0.00)	(0.00)
	Report interval	0.14**	0.22**	0.17**	0.18**
		(0.00)	(0.00)	(0.00)	(0.00)
	Constant	-8.31**	-3.62*	-4.94**	-4.85**
		(0.00)	(0.04)	(0.00)	(0.00)
Selection Model DV: Probability of an outsourcing model in first implementation					
				-1.77**	-1.71**
	Task interdependence			(0.00)	(0.00)
	Function offshored as part			-0.16*	-0.15*
	of firm's global strategy			(0.04)	(0.05)
	Geographical distance			0.12	0.15†
	(home-host countries)			(0.18)	(0.09)
	Multiple geographies (in			0.02	0.06
	period 1)			(0.94)	(0.80)
	Firm possesses an offshore			0.06	0.04
	strategy (1=yes)			(0.79)	(0.86)
	Firm size (log)			0.04	0.04
				(0.23)	(0.29)
	Host country wage			-0.29†	-0.32*
				(0.05)	(0.02)
	Constant			8.47**	8.19**
				(0.00)	(0.00)
	Wald test of indep. Eqns.			1.97	4.7*
	(rho=0): chi2:			(0.16)	(0.03)
	Observations	157	206	348	340
	Log likelihood	-66.41	-73.59	-287.8	-271.2
	DF	5	7	12	14
	Chi2	34.17	60.82	21.36	34.27
	Robust pval in parentheses ** p<0.01, * p<0.05, † p<0.1				

[1/] Three functional areas or business areas are included in the dataset: Information Technology Offshoring (ITO), Business Process Offshoring (BPO) and Knowledge Process Offshoring (KPO). Activities within each functional area are presented in Table 4.2.

An examination of the control variables included in Tables 4.3 and 4.4 provides additional insights to the process of geographic expansion. Perhaps the most relevant is that there are significant differences between the effects of the independent variables, depending on the organizing mode. In particular, the presence of multiple locations in the initial period and the inexistence of an offshore strategy are highly significant in increasing the likelihood of geographic expansion for an outsourced operation, but not for wholly owned ones. Conversely, firm size is significant for geographic diversification in captive operations, but irrelevant in outsourcing arrangements. On the side of environmental effects, table 4.4 and 4.5 show that a higher level of a host country's wages is positively related with geographic diversification. Finally, the control variable that accounts for the difference between the year in which the initial implementation was adopted and the year in which the data was captured (variable: *report interval*) is significantly positive in both captive and outsourced modes of organizing, suggesting that geographical diversification expands as time goes by.

Functional Diversification Results: Similar to geographical diversification within a business area, the dataset under analysis contains a fairly large number of business diversification instances (measured as functional changes within a given country). Table 4.2 report that 23% of the total firms in the dataset (46% of the firms reporting a follow up implementation) have implemented new functions in the country where they established operations in the initial period (measured in average 5 years after their initial implementation). Table 4.6 analyzes functional diversification patterns occurring within a given host country and it includes the joint information about captive and outsourced arrangements. Analogous to previous analysis, two methods, probit CRSE (columns 1 and 2) and Heckman probit (columns 3 and 4) are used. In this case, the Wald test suggests a high influence of the selection model; hence I use Model 4 in Table 4.6 to test Hypothesis 3.

Table 4.6: Estimates for the likelihood of functional diversification in the host country in captive and outsourced initiatives

		DV: Functional Expansion			
		Probit		Heckman Probit	
		(1)	(2)	(3)	(4)
Expansion Model					
	Financial aspiration fulfillment		-0.01		-0.01
			(0.33)		(0.23)
	Time to operational goals (H3)		-0.29**		'-0.28**
			(0.01)		(0.00)
	Outsourced function (yes =1)		-0.51*		-1.25**
			(0.02)		(0.00)
	Multiple functions (per.1)	0.64*	0.48†	0.64**	0.43*
		(0.02)	(0.07)	(0.00)	(0.03)
	Firm possesses an offshore strategy (1=yes)	0.25	0.23	0.24	0.23
		(0.25)	(0.33)	(0.16)	(0.21)
	Firm size (log)	0.03	0.06*	0.03	0.07**
		(0.32)	(0.05)	(0.18)	(0.01)
	Host country wage	-0.31*	-0.48**	-0.30**	-0.56**
		(0.03)	(0.00)	(0.01)	(0.00)
	Report interval	0.03	0.02	0.03	0.02
		(0.33)	(0.55)	(0.22)	(0.48)
	Constant	1.31	3.91**	1.29	5.08**
		(0.32)	(0.01)	(0.23)	(0.00)
Selection Model DV: Probability of an outsourcing model in first implementation					
	Task interdependence			-1.52**	-1.48**
				(0.01)	(0.01)
	Function offshored as part of firm's global strategy			-0.17**	-0.19**
				(0.00)	(0.00)
	Geographical distance (home-host countries)			0.17†	0.10
				(0.07)	(0.32)
	Multiple geographies (in period 1)			-0.03	-0.00
				(0.86)	(0.99)
	Firm possesses an offshore strategy (1=yes)			0.04	0.08
				(0.77)	(0.62)
	Firm size (log)			0.04†	0.04†
				(0.08)	(0.05)
	Host country wage			-0.22*	-0.29*
				(0.08)	(0.02)
	Constant			6.57*	7.71**
				(0.01)	(0.00)
	Wald test of indep. Eqns. (rho=0): chi2:			-1.61	2.44
				(0.108)	(0.015)
	Observations	348	348	348	348
	Log likelihood	-150.7	-148.4	-360.4	-347
	DF	5	8	12	15
	Chi2	13.75	24.72	70.02	118.2
	Robust pval in parentheses ** p<0.01, * p<0.05, † p<0.1				

Hypothesis 3 predicts that, regardless of its organizing mode, an operation that is able to promptly satisfy operational scope aspirations is more likely to diversify or increase its scope. This suggests that a significant negative coefficient in the variable *Time to operational goals* is expected. The results in Model 4 support this claim. At the same time, the variable *financial aspiration fulfillment* is not significantly different than zero, suggesting that heavier weight is given to the operational rather to financial concerns when defining expansion patterns of upstream and support activities. This finding is important not only as it illustrates that firms' international expansion is guided by goals other than profitability (Greve, 2008), but also because it shows that organizations use different performance goals in shaping their footprint, particularly in complex contexts, where value creation is not linear, but depends a lot on reliable interactions among subprocesses. The variable outsourcing is significant and with a negative coefficient, suggesting that the likelihood of functional expansion is higher in fully owned arrangements.

With relation to the control variables, table 4.6 provides a broader vision concerning the process of expansion within a country. First, country average wage is significant in all arrangements, with a negative coefficient in all models, suggesting that cost reduction reasons are significant not only on the initial implementation, but are useful to open new opportunities when relocating operations within the firm. Second, size is positively correlated with expansion, as it is also consistent with the idea that bigger firms are better prepared to expand in countries where they find talent pools adequate to perform adjustments in their value chain. Finally, there is no significant relation between further expansion and the pre-existence of an offshore strategy under uncertain conditions, which is consistent with the idea of emergent strategies guiding the expansion process (Santangelo & Meyer, 2011).

4.6 Discussions

This paper makes four main contributions. First and foremost, it presents a model that helps understand the internationalization of information activities in the organization and

communications age (Buckley & Ghauri, 2004; Lewin & Peeters, 2006; Vahlne et al., 2011). Two features of the model are fundamental to its novelty: the first feature is its focus on the internationalization of upstream and support activities, which contributes by shifting the attention away from conditions imposed by market-seeking internationalization under the IP model (e.g., the adoption of wholly owned operations as the commitment with a country deepens, the need for market- specific knowledge as a trigger of firm expansion and the neglect of simultaneous entries into markets or regions). The focus on a firm's upstream and support activities brings to the fore characteristics of the global distribution of work, in particular, the high interdependence among processes (Kumar et al., 2009) and the need for geographical specialization rather than the replication of activities in each country (Barkema & Drogendijk, 2007). The second feature is its framing, which analyzes sequences of implementation involving individual activities that are aggregated either by knowledge bases or locations, proposing a falsifiable model that links previous implementations to subsequent expansion patterns.

Second, by combining PF theory with the IP model, this analysis exploits an already established connection between internationalization processes and firm's aspirations (e.g. Petersen et al., 2008; Wennberg & Holmquist, 2008). By adopting a similar approach, the framework described in this paper extends the IP model in three ways: i) it theorizes expansion alternatives (functional diversification within a location or geographic expansion within a knowledge base) by providing a rationale to support each path; ii) it presents a nuanced view of performance gaps by separately analyzing fully owned and outsourced organizing modes, and finds that the interpretation of the gaps is moderated by the mode of organizing; and iii) it describes how, in the case of upstream and support activities, firms adopt expansion decisions with a wide consideration of performance metrics, by considering not only profitability, but also non-financial variables. In sum, the framework proposed offers significant detail regarding certain decision mechanisms impacting the evaluation of what Johanson and Vahlne (2009) call "state variables," and how alternative outcomes are derived from expansion, either within or across countries.

Third, this study also has implications at the level of the phenomenon, as it explores the process of offshoring from a behavioural perspective. In particular, it signals the effect of learning and aspiration fulfillment in the definition of offshoring paths (Maskell et al., 2007). While the issue of evolution has been previously discussed in the literature of offshoring (Carmel & Agarwal, 2002; Lewin & Peeters, 2006; Vivek et al., 2008), the specific contributions of previous experiences and particular patterns of expansion have not been explored quantitatively. This study provides an initial attempt to understand expansion behaviours in offshoring, and its results are consistent with an evolutionary view rather than an all-at-once rationalization process (Bunyaratavej, Doh, Hahn, Lewin, & Massini, 2011; Vahlne et al., 2011).

Fourth, the model provides two insights into the behavioural literature. The first one is the interaction effects existing between financial aspiration levels and ownership modes, which create distinctive logics behind geographic expansion. This finding calls for caution in terms of the generalizability of PF findings, as scholars need to provide clear boundaries, since contextual changes may alter the decision-makers' behaviour to the point of rendering the theory inapplicable. Second, the inclusion of operational and financial performance targets offers interesting insights regarding multiple goal interactions (Greve, 2008). The results suggest that operational (and not financial goals) are relevant to defining functional diversification and providing evidence in favour of the sequential attention to goals rather than the reinforcement among them. While it is possible that this result originates from the nature of the processes (support activities with relatively high interdependence), it offers an interesting puzzle for future research.

Like any other empirical analysis, the present study has limitations. First, the data preparation methods included information exclusively for the first and second years when the projects were implemented, which limits the ability of the model to detect either learning patterns emerging after multiple implementation periods (Vivek et al., 2008) or the effects of the feedback process itself, as cycles of modification may alter the structure of the industry (Jacobides & Winter, 2012). The second limitation relates to the

measurement of the operational performance goal (i.e., the time invested in reaching targeted service quality), as a lack of standardization among reported answers faces the risk of being affected by retrospective bias considerations (C. C. Miller, Cardinal, & Glick, 1997). Ideally, a highly standardized non-profitability indicator must be used to measure an operation's quality; however, no such measures were available in the current setting.

Extensions of this research may focus on explaining the underling mechanisms that describe the process of expectation fulfillment occurring during internationalization processes. For instance, scholars could explore to what extent aspirations are created by the assessment of the host environment (based on wages, productivity estimations and cultural fit), and to what extent firms use estimations of their own ability to mobilize host country resources (J. F. Hennart, 2009). A second avenue to extend the research is to analyze the effect of interdependencies in a more detailed manner. It is expected that the level of interdependencies enhances communication between sites, thus increasing opportunities to reveal skills and capabilities for potential functional restructuring. The analysis of interdependencies is an underexplored variable in strategy (Caspin-Wagner, Lewin, Massini, & Peeters, 2013; Kumar et al., 2009) and its implications in internationalization are yet to be discussed.

4.7 Conclusions

How do firms realize their offshore strategies? While scholars have called attention to the importance of understanding value chain internationalization, and how it is transforming competition among industrialized country firms (Lewin & Peeters, 2006), the process by which this occurs is not yet fully understood (Maskell et al., 2007). This paper argues that while the Internationalization Process Model offers a strong framework to analyze the process of value chain fragmentation, it is necessary to review certain critical characteristics of upstream and support value chain activities. In particular, the need for optimization rather than duplication of activities (Barkema & Drogendijk, 2007), the use of alternative governance mechanisms (Benito et al., 2009), and interdependence

among locations all call for an adjustment on the drivers of functional and geographic expansion. With the use of PF theory, I provide such an adjustment, demonstrating not only the particular role of project outcomes on explaining offshoring expansion, but the differential nature of the drivers guiding particular trajectories.

CHAPTER 5: CAPABILITY AND ORGANIZATIONAL CO-EVOLUTION IN OFFSHORING

5.1 Abstract

This paper explores the role of organizational architecture mechanisms in capability evolution. The existing literature describes the role of organizational traits in capability creation, but a detailed account of how changes in the firm's architecture enable the development of capabilities has not yet been explored. Drawing on two in-depth case studies developed in the context of business service offshoring, this paper contributes to the literature on capability evolution in three ways. First, it theorizes that narrow scope roles and performance metrics are the fundamental channels used to guide capability emergence in the initial stage of offshoring, in both in-house and outsourced centers. Second, it suggests that incipient capability emergence creates a push for increases in functional integration with other firms' units, regardless of whether the firm adopts in-house or outsourced offshoring methodologies. Third, it theorizes that advanced stages offshoring show a larger dispersion of organizational architecture tools in either in-house or outsourced offshoring settings, as the tools are selected to tie the leveraging of already developed capabilities to support the firm at large.

5.1 Introduction

Could changes in an organization's architecture contribute to creating superior firm performance? This question has recently moved to the fore, as scholars have expanded their understanding of the role that an organizational structure plays in capability emergence (Gavetti, 2005; Teece, 2007). Organizational structures provide not only a mechanism to influence individual and collective attention (Felin, Foss, Heimeriks, & Madsen, 2012; Simon, 1947), but also a mechanism to shape adaptation (Joseph & Ocasio, 2012), as they create framings that enable the interpretation of environmental opportunities and threats (Teece, 2007). Some scholars have already explored the role that organizational attributes play in capability creation (e.g. Dutta, Zbaracki, & Bergen,

2003; Montealegre, 2002), while others have explored the role of management-led factors in profitability (e.g. Adner & Helfat, 2003; Sirmon, Hitt, Ireland, & Gilbert, 2011; Tripsas & Gavetti, 2000). Nevertheless, we still lack a fine-grained exploration of how organizational design interventions adopted by managers affect the processes of capability emergence and solidification (Felin et al., 2012). This paper seeks to contribute to the literature by exploring the mechanisms used by organizations to orchestrate individual talents and skills available in offshored locations so as to transform them into firm-level capabilities. In particular, this analysis centers on the intertwined relation between organizational and capability development, in which the organization's architecture is modified to support the different stages of capability evolution.

This paper explores the issue by integrating the capability development literature (Eisenhardt & Martin, 2000; Rockart & Dutt, 2013; Teece, 2007; Teece, Pisano, & Shuen, 1997) with the literature on the attention-based view, or ABV (March & Olsen, 1979; Ocasio, 1997; Ocasio & Joseph, 2005). The argument is that a firm's proactive organizational development is instrumental for the development of offshoring capabilities [10]. Furthermore, there is a co-evolutionary interaction between the competencies and organizational development in the offshoring unit, as the progressive transformation of individual skills in organizational competencies requires structural modifications that enable capability emergence. The selective use of organizational design mechanisms provides some degree of agency in the development of firm heterogeneity.

This study aims to explore the following two questions: how do changes in the organizational architecture of a business unit affect its capability development process?

[10] A word of caution is necessary to distinguish between the terms "proactive organizational development" and "deliberate strategy" (H. Mintzberg & Waters, 1985). The term proactive implies the existence of a clear vision and intentions that can be exclusive of the leaders or shared across multiple levels in the organization, however, the articulation of those intentions is not necessarily elaborated, and allows sufficient room for adaptation, in particular as the process captures a significant degree of experiential learning (as described in Chapter 4).

Are the architectural changes different, whether the firm adopts in-house or outsourced offshoring settings? Organizational architecture refers to the *"structure of communications, interactions and authority relations in the organizational structure"* (Joseph & Ocasio, 2012, p. 634). In order to provide an exploratory answer to this question, I analyze the experiences of two successful organizations in the context of administrative and technical activity (A&T) offshoring, under in-house and outsourced offshoring settings. The practice of A&T offshoring provides an excellent context for examining linkages between organizational structure modifications and capability evolution processes, not only because the adoption of offshoring practices entails the creation of a business unit from the ground up in a site where related operations are unlikely to exist, but also because the decision-makers involved in the process present high motivations to develop capabilities that secure the offshoring entity's survival and growth. The firms included in the current study belong to the information technology and management consulting industries. The two companies were among the early adopters of a business offshoring strategy (1999 and 2001, respectively); moreover, both are considered highly successful and perform knowledge processes requiring advanced analytical and technical skills. The firms, however, have followed radically different approaches to offshoring: the first firm adopted an in-house, progressive involvement in offshoring, while the second one adopted an outsourced, rapid move toward the adoption of an offshoring model.

This paper offers three findings to the extant literature on organizational structure effects over firm capabilities. First, I suggest that there is a co-evolutionary effect in between the organization's architectural changes and the emergence of offshoring capabilities. The proactive adjustment in the organizational structure facilitates the capability development process, but at the same time, the emergence of a distinctive set of capabilities requires additional structural changes. Second, the most visible effect in the structure (as capabilities emerge) is a relative increase in the level of functional integration, in both in-house and outsourced offshoring settings. An increase in the level of functional integration is triggered by the resource specialization model produced as

offshoring unfolds. Functional integration with other teams works in two ways: one by addressing problems of output variability and complexity as the operations grow, and the other by creating opportunities for leveraging offshoring competences. Third, while there is relative similarity in the paths adopted by the firms during their initial stages, the action repertoires adopted under in-house or outsourced offshoring settings become divergent as the subunits adopt a more differentiated role within the firm. In addition, this paper contributes to the attention-based literature by exploring the role of narrow scope jobs and metrics to guide offshoring operations, and how functional cross-unit channels are used to help groom specialized offshoring capabilities. This result seeks to present a detailed account of the organizational design mechanisms used to create globally distributed operations beyond what has been explored in prior analyses (e.g. Jensen et al., 2013; Vahlne & Johanson, 2013).

The remainder of the paper is organized in five parts. Section two presents a theoretical description of the literatures of capabilities and the attention-based view. Section three serves a dual purpose: 1) it presents the methodology, explains why a qualitative analysis was appropriate for this research project, and outlines the case selection, data collection and analytical approaches followed; and 2) it presents a quick summary of the offshoring evolution in each of the firms under analysis. Section four analyzes the co-evolution of organizational structure and capability development in its different stages. Section five presents a series of propositions emerging from the analyses. Finally, the conclusion section summarizes the main contributions of the paper, along with a discussion of the limitations and future research avenues.

5.2 Theoretical Background

The capabilities literature is one of the dominant frameworks used by scholars to analyze differences in profitability among firms. This literature suggests that firm heterogeneity is influenced by a firm's internal factors. Specifically, it posits that a firm's performance is rooted in its abilities to build, integrate, and recombine resources to perform distinctive activities (Teece et al., 1997). For this purpose, an organization draws on inputs such as

individual skills, accumulated experience, existing routines, knowledge, and firm characteristics to develop decision structures and heuristics that support decision-making (Zollo & Winter, 2002). The literature distinguishes two levels of capabilities: operational capabilities, referring to processes whose focus is on *"producing and selling the same product, on the same scale and to the same customer population"* (Winter, 2003), and dynamic capabilities, which refer to *"the capacity of an organization to purposefully create, extend or modify its resource base"* (Helfat et al., 2009, p. 4).

At the microfoundational level, the capabilities literature is rooted in evolutionary economics (Nelson & Winter, 1982), which describes a firm's behaviour as guided by routines, which are recurrent patterns of activities involving multiple interdependent actors (M. C. Becker, 2004; Feldman & Pentland, 2003; Winter, 2003). Routines are based on learning processes that are typically adjusted by search rather than optimization logics (Nelson & Winter, 1982). The focus in routines has provided a parsimonious logic on the continuity of capabilities, and the ability they have to become a simultaneous source of stability and change in organizations (Feldman & Pentland, 2003). Routine behaviours and their characteristics have been extensively analyzed and debated (for recente reviews see M. C. Becker, 2004; Di Stefano, Peteraf, & Verona, 2010; Easterby‐Smith, Lyles, & Peteraf, 2009; Felin et al., 2012). However, the success of routine-based behaviours to explain capability development in a semiautomatic way has come at the expense of overlooking other sources affecting capabilities dynamics (Gavetti, 2005; Jacobides & Winter, 2012; Sirmon, Hitt, & Ireland, 2007), in particular, by ignoring the role that managerial intentionality plays in the development of capability heterogeneity.

The central concern of this paper is the influence of organizational architecture mechanisms over the capability development process (c.f. Gavetti, 2005; Kraaijenbrink, Spender, & Groen, 2010; Sirmon et al., 2011). The view adopted in this paper is that an organizational structure is a tool by which firms can configure activities to leverage resources and cumulatively develop their capabilities (Galbraith, 1974; Greenwood &

Miller, 2010; Joseph & Ocasio, 2012). At a general level, structures affect decision processes by distributing and allocating an individual's attention toward some aspects of a situation, while ignoring others (Ocasio, 1997; Simon, 1947). An organizational structure leads to particular patterns of resource specialization, facilitates efficiency in information processing, and enables mechanisms to elicit coordination and cooperation across business units (Davis, Eisenhardt, & Bingham, 2009; Galbraith, 1974; March & Simon, 1958; Martin & Eisenhardt, 2010).

An analysis of the structural implications in routines and capabilities can be partitioned into three main areas: the existence of an architectural effect over capability emergence (Bingham, Eisenhardt, & Furr, 2007; Sirmon et al., 2007), suggesting an inverted-U shaped relationship between the amount of structure and the level of performance (Davis et al., 2009); the implications of alternative designs in capability development (N. S. Argyres, Felin, Foss, & Zenger, 2012; Jacobides & Winter, 2012) as the adoption of a specific structure imposes difficulties on items such as autonomy, knowledge-sharing and coordination (Foss, 2003; Ranjay Gulati & Puranam, 2009); and the effects of antecedent and foundational conditions on capability formation (Baron, Hannan, & Burton, 1999). These areas share a common understanding of the structural implications over capabilities; however, with a few exceptions (Ranjay Gulati & Puranam, 2009), detailed accounts of how structural changes affect the emergence of organizational competencies are missing in the literature (Felin et al., 2012).

An important group of insights illuminating the potential effects of structure over the evolution of capabilities is provided by the attention-based view, or ABV (Bouquet & Birkinshaw, 2008; March & Olsen, 1979; Ocasio, 1997; Ocasio & Joseph, 2005). ABV recognizes that decision- makers are limited in their ability to attend to the multiplicity of the demands they face, and argues that decisions are made depending on where the decision-makers focus their attention (Ocasio, 1997). ABV defines attention as a limited resource, where relevant issues and answers are situated in a dynamic web of operational and governance channels (Ocasio & Joseph, 2005). As such, ABV suggests a central role

of structures, rules and social relationships in organizational behaviour, and helps connect managerial intentionality and firm adaptation.

ABV provides a framework in terms of how selective attention to problems and solutions guide decision-making. In order to do so, it focuses on the role that governance and operational channels play in distributing attention to issues throughout the firm. Governance channels are "*formal collective interactions set up by the firm to control, allocate and monitor organizational attention and resources"* (Joseph & Ocasio, 2012, p. 635). Operational channels *"administer and execute programs, projects and activities"* (Ocasio, 2012). In this way, ABV proposes that governance and operational channels form a filter in the environment, defining which and how information is noticed.

The formulation, based on the channels proposed by ABV, becomes a valuable tool to analyze how architectural changes affect the evolution of capabilities. ABV argues that an organization capable of configuring channels to optimize managerial attention is better suited to nurturing emerging capabilities (Ocasio & Joseph, 2005). However, while the ABV framework describes a promising avenue to analyze the linkages between architectural changes and the capability development process, insights as to how this process unfolds are not available in the literature. To provide an initial step in this direction, I develop a comparative analysis of the longitudinal process (8- and 10-year processes in the cases of Alpha and Omega, respectively) in which two firms organized and adjusted the structures of their successful offshoring units. This analysis can provide relevant information about the specific mechanisms used in organizational architectures to modify the evolution of offshoring capabilities.

5.3 Methods

5.3.1 Research Approach

This paper presents an inductive theory of structure and capability co-evolution, based on an in-depth, qualitative study of two firms successfully adopting the practice of Administrative and Technical (A&T) offshoring. The use of a qualitative inquiry was

appropriate for three reasons. First, the objective of this analysis is "theory elaboration" (Lee, Mitchell, & Sablynski, 1999), as I seek to contrast extant understandings in the capability and ABV literatures with observed events in organizations to extend the current theory. Second, this analysis involves historical processes, involving multiple levels, events, choices, and activities ordered in time (Langley, 1999). Qualitative methodologies offer techniques to analyze complex social processes by facilitating the study of event sequences and causal sources in ways that quantitative research cannot (Eisenhardt & Graebner, 2007). Third, the topic is affected by issues of causal ambiguity and complexity (Ryall, 2009), which require rich information to reveal the role of managerial intentionality and its linkages with organizational architecture and capability evolution.

A critical aspect in the selection of the research context is the evidence of capability emergence in the analysis period. In the case of offshoring practices, the emergence of capabilities is strongly signalled by an increased flow of resources and processes that are managed in globally distributed settings (Beugelsdijk et al., 2009; UNCTAD, 2013) and by the level of responsibilities assigned to the offshore units (Carmel & Agarwal, 2002). Scholars have appreciated how, starting from an initial experimental stage, firms have moved progressively toward increased sophistication and scope regarding their business processes (Lewin & Peeters, 2006); in some cases, this has implied a transformation of the firm's overall structure (Jensen, 2009). Case examples illustrate how specific offshoring capabilities have emerged in response to organizational and environmental challenges (Athreye, 2005; Lacity & Fox, 2008) in areas such as coordination (Sidhu & Volberda, 2011) and IT management (Rottman & Lacity, 2006). Overall, existing accounts see offshoring organizations developing in a staircase pattern, where a combination of internal firm pressures and environmental opportunities transform resources into capabilities (Carmel & Agarwal, 2002; Lewin & Peeters, 2006; Manning et al., 2008; Rottman & Lacity, 2006) by aggregating knowledge and transforming organizational structures to incorporate higher value activities (Contractor et al., 2010; Maskell et al., 2007).

The two cases under analysis follow maximum variation sampling (Patton, 2002), seeking to incorporate variations and commonalities in the organizational architecture among firms that have adopted in-house and outsourced offshoring approaches. This paper reports the offshoring experiences of two US-based corporations, leaders in the consulting and network technology sectors[11]. These firms will be referred to in this paper as Alpha and Omega, as they have not authorized the disclosure of their identity in this research. The offshoring journeys of both firms are comparable in a number of characteristics, with a significant difference in their offshoring strategies. First, the two companies are successful in their offshoring implementation, meaning that they have moved through learning stages as an indication of developing specific offshoring capabilities. Second, they are comparable in origin and in the countries where they have offshoring site operations, (e.g., India, Costa Rica). Third, both started their operations at an early stage of practice development. With regard to differences, both firms have followed significantly different offshoring approaches. First, these companies had different types of ownership regarding their offshoring operations (Alpha's model relies on third parties; Omega developed an in-house solution). Second, Alpha started with a larger scope from the beginning through the utilization of three different service providers in three locations, while Omega started its journey with a very limited scale by hiring a few analysts in one single location. Third, Alpha's strategy was fundamentally driven by cost considerations, while Omega attempted to attract the best talent available in the locations where it was operating. The characteristics of these selected cases allow us to document emergent common patterns across variations (Patton, 2002).

[11] The nature of offshoring processes is not expected to be influenced by the sector in which the firm participates, as these activities rely on differentiated knowledge bases and incentive structures (Jacobides, 2005).

5.3.2 Data Collection and Analysis

In general terms, the design and implementation of the data collection stage followed the work of (Eisenhardt, 1989a, 1989b). In both firms, a combination of different information sources was involved, in particular, interviews and published/archival data. The main source of information was the application of semi-structured questionnaires to key informants in different levels of the firms. The interviews, whose average duration was one hour, were recorded (when permitted) and transcribed. Interviews were set to capture retrospective information on the different stages of the chosen unit's development. Although this technique may present issues of imperfect recall or avoidance of particularly sensitive information (Huber and Power, 1985), two strategies were used to enhance the reliability and validity of the data collection strategy. First, a triangulation approach was followed to determine the key events and their root causes. Triangulation included using multiple sources of information (i.e., different interviewees) and methods (interviews, archival or public information) around the central events in the period under analysis (Lincoln & Guba, 1985). Second, a description regarding the main purpose of the research was disclosed to participants at the end of the data collection process in order to prevent issues related to the embellishment of reality (Miles, 1979).

There are, however, relevant differences between both cases in terms of the particular collection of information. In the case of Alpha, the information was collected in the period 2005-2006, and with the support of the high-level management, 40 people were interviewed in different parts of the organization, from the CEO to line managers. One of the characteristics of this case is that most decision-makers who participated in the initial stages were still engaged with the firm when the information was collected, an aspect that facilitated the information gathering around different stages of development, along with contrasting multiple perspectives. This process included visits to offshore locations and interviews of contacts at the service provider's premises. In addition to this, secondary information was collected (e.g., team evaluations, customer satisfaction surveys, and performance metrics) during the visits to the firm.

The data for Omega were obtained by combining secondary and primary sources of information. The information collection began by gathering all public information available on the firm, its knowledge gathering systems and its offshore organization. The preliminary search focused on a specific series of topics (culture and leadership, global structure, knowledge management systems) to untangle Omega's offshoring evolution. Roughly 30 documents (case studies, published interviews, books, consulting documents, and industry reports) on the selected topics were reviewed prior to the collection of primary information. Published interviews of the former CEO and two interviews of the founding leader regarding the initiative were fundamental in the reconstruction of the initial stage. Four extensive in-person interviews were then performed with key members of Omega's team in different levels of the organization, with the purpose of understanding contextual events leading to particular actions. This was complemented with an analysis of experiences published by Omega's offshoring leader, who has written several opinion letters in his personal blog.

The methodology of the data analysis followed case studies such as Eisenhardt (1989b) and Leonard-Barton (1990). As in these articles, this analysis initially developed individual firm cases and later created a cross-case comparison with other firms' experiences. The individual firm cases were built using an embedded design and a theoretical replication (Yin, 2003). They were constructed by an aggregation of information collected for each of the companies and by the triangulation methods described earlier in this section. The cross-comparison between firms was performed in each of the main areas of this conceptual map: capability development, organization architectural modification, and perceived outcomes and context effects. The objective of the comparison was to understand the role that structure and channels play in the process of developing offshoring capabilities, and how the process depends on contextual factors. During the cross-comparison, evidence that illustrated the following patterns was explored: a) common or divergent patterns underlying the diffusion of standardized practices across firms; and b) different patterns of practice adoption among firms that appeared to be rooted at the level of knowledge possessed by the country or region.

Tools to support these searches, such as logical analysis and the process outcome matrix (Patton, 2002) were implemented; also, pair analysis techniques were used to identify similarities and differences between cases (Eisenhardt, 1989a; Graebner, 2004)

5.4 Cases under analysis

Alpha is a Fortune 500 firm leader in the Information Technology area, with more than 40,000 employees worldwide. Alpha's products are focused on network- and Internet-related areas, in a sector with very rapid technological change. The company is structured along functional lines, with a strong focus on engineering and sales. Within these areas, the work is organized by technology groups composed of "business units" with profit and loss responsibility. Alpha is a highly networked firm, where informal interactions among individuals facilitate integration across functional lines. The company has a strong customer service-oriented culture. The current study is centered on one of the customer advocacy branches of Omega, called the Technical Services (TS) Organization, which offers support to all technological groups. Alpha's TS offshoring emerged after an initial period of high growth (1995-2000), in which the firm had outsourced part of its components and support activities as a way of coping with a rapid increase in demand. A dramatic downturn, as a consequence of the burst in the dot.com bubble in March 2000, imposed pressure to reduce costs; as a result, Alpha decided to offshore part of the work of its Technical Assistance Centers (TAC) to a site in Costa Rica. Soon after, new centers were opened in India, Mexico, the Philippines, Jordan and Hungary.

Omega is one of the leading professional service firms in the world. With more than 17,000 employees and 9,000 consultants, the firm focuses on offering advice to senior management in businesses, governments, and other large institutions. The firm is organized into geographical units and operates in more than 50 countries, which provides strong connections to different local environments. In addition to its geographic components, the firm is also specialized in key industries and functions. Omega is distinguished for having a strong networking culture, which is considerably less

hierarchical than the typical firm its size. Omega considers its people and knowledge as its primary asset, and the firm invests significantly to attract top consulting talent and provides it with access to the intellectual capital accumulated in the firm. As part of its consultancy activities, Omega maintains a knowledge network that is in charge of supporting consultants with information needed for their activities, which is the focus of this analysis. By 1997, this knowledge network was a fragmented 800-person organization, heavily dependent on the peaks and troughs of the ups and downs of the local consulting operation, and with limited abilities in specialization, due to a lack of critical mass in individuals' activities. Offshoring was initiated in the middle of a cost-cutting period, in the shape of a pilot operation intended to provide quick support to offices unable to fulfill their demand for research assistance. The flagship center was set up in India, followed by Brussels, the US, and later operations have been established in locations such as China, Poland, and Costa Rica.

5.4.1 Analysis: Organizational design factors affecting capability development

Alpha's antecedents and initial stages: In Alpha, the processes leading to the adoption of A&T offshoring practices were intrinsically related to environmental conditions in the IT sector. In the period of 1995-2000, Alpha experienced tremendous sales growth, which placed heavy pressures on other areas of the firm as it was searching for alternatives to increase scale without impacting costs. The growth speed created little, if no resistance to the adoption of outsourcing practices, as they were seen as a valuable alternative to cope with market conditions. As a senior VP of the firm described: "*In the fast growth days, there were no territories. If you wanted to do something and I was going to do it, that was a benefit, "Here, take that," because everybody had so much to do."* Led by an ambitious companywide performance metric of $450,000 in annual revenue per employee, outsourcing was seen as a natural alternative to attain volume growth, while maintaining alignment with top management demands. Outsourcing produced changes in different parts of the firm, such as manufacturing operations, which transformed from being 100% internally managed in the period 1995-1996 to being 90% outsourced by 2001.

In sales-support operations, the company was unable to hire or train engineers to provide superior technical support to its clients. The characteristics of the support service were highly technical, and the company had among its central values to respond effectively to fulfill its customers' needs. Since its inception, the TS department was established as a central part in Alpha's strategy, remembered the TS department's senior VP: *"We wanted to build a technical support engine that was a differentiator, just like the product was […] so we actually utilized engineers to do technical support."* The service was initially structured in two tiers: an Internet troubleshooting service, where client engineers could access technical notes to address basic problems, and a team of on-call Alpha engineers, which provided support to more complex issues.

To maintain the quality of the TS services in a high-growth environment, Alpha's managers saw the opportunity to redefine job positions, creating narrow scope roles requiring lower-level qualifications that could potentially be executed externally to the firm. This led to the hiring (in 1998) of external firms to provide a level of support that would handle high-volume low-complexity cases (the initial figure included 30% of the cases that were not handled over the Internet, which subsequently increased up to 70%). The support partners provided services from four locations: two in the US, one in the UK, and one in Australia. A former manager of TS, now a VP in the area, explained how the idea originated:

> *"You got to be MSEE* [Master of Science in Electrical Engineering or equivalent] *if you need to understand any of this stuff. So we actually subdivided work, broke up into small little things. And what we learned as we're going through that process is that once we could prove or disprove that you could scale the business by having narrowly skilled people targeted on particular technology is that you could potentially now take that to a third party and give them that same narrow task […] it wasn't really a cost issue at the time, we needed scale."*

The strategy of subdividing or modularizing activities had an additional advantage. It allowed Alpha an additional layer of protection of its intellectual capital (knowledge, data and information) as the firm avoided capabilities to be transferred to suppliers. By fine-slicing individual tasks, the firm was able to generate an 'intermediate level of support' using suppliers whose expertise was centered in the management of repetitive issues. At the same time, it allowed Alpha engineers to focus their time on the management of the most complex cases, not only facilitating the more efficient use of highly trained engineers, but also retaining the critical connections between support and new product development departments.

The burst of the Internet bubble in 2000 pressed Alpha to reduce customer support costs, and between 2001 and 2002, the firm followed suppliers to low-cost offshoring locations in Costa Rica, Mexico, and India to provide an intermediate level of support. Three distinct suppliers were sought, following a standard firm practice to minimize risks (i.e., in case a supplier decided to close its operation) and to leverage Alpha's negotiating positions. The initial work was characterized by low complexity-high volume conditions, and customer satisfaction was measured using the same metrics that have applied in internally executed cases: optional satisfaction surveys, a customer advisory board, and meetings between the CEO and major customers. A firm TS Director explained the rationale of the process:

> "*Our goal was to take the easy cases and ship them down there to somebody who can do it for forty bucks instead of paying nine hundred here. And so we did that. We took all the ones, you know, the very high volume, repetitive cases. We were able to get them to the old customer standard of 4.6 after a relatively short period of time. And so we showed great success, success you know, and people looked at it and said, 'OK, you can do it with that. Let's do more'.*"

Alpha maintained a hands-on approach in the selection and management of service providers. With regard to partner selection, key decision factors were the evaluation of a supplier's capabilities, working conditions and a good fit with Alpha`s own culture, with

the goal of creating a seamless transition in the customers' eyes. Alpha's IT managers had direct responsibility over: i) day-to-day operations; ii) growth of the supplier, with particular involvement in the development of leaders in the offshoring site; and iii) contract management. This small structure allowed Alpha to quickly react to emerging situations. Moreover, there was a significant effort placed on implanting Alpha's culture in the offshoring locations. In terms of infrastructure, vendor employees providing Alpha with support services were located in independent sections of the suppliers' facilities, and provided access to Alpha`s email, communication and computing technologies. Alpha achieved a high level of employee identification in the offshoring sites. As a senior manager with responsibility over one supplier commented:

> *"If you talk to the engineers in any of these locations, I think what's most prevalent and so pervasive is how Alpha-positive they are. I mean, they really, honestly do live and breathe Alpha. And you know, it's not only because of their love of being in this particular part of the industry, they literally love our culture, the Alpha culture; and it's very evident, I think, in how motivated and enthusiastic they are about making our customers their number one priority. It's very apparent."*

<u>*Alpha's middle and advanced stages:*</u> There was a problem, however, emerging from the fast adoption of offshoring adopted by Alpha. The rapid expansion in multiple locations, and the excessive reliance on individual managers to control the work of the offshoring sites' responsibility allowed for flaws in the existing support model: a lack of consistency, growing complexity, and an inability to successfully attain customer service satisfaction. A senior manager of TS described the following: "*We were maybe inconsistent in what we were asking the vendors to do. In addition, we had a tendency to trust people without imposing too much control because it was not really in Alpha's culture."* Another manager added, "*We have way too many centers to manage, and there's much work being done, so we've kind of lost track on who's doing what, and where they are doing it."* Customer complaints started accumulating and reached all levels of the organization, from TS managers to the firm's CEO. It wasn't until the CEO

began receiving customer complaints that the quality of offshoring support became a critical problem. The firm relied on its practice of assigning out-of-context personnel to analyze the issue. Resulting evaluations indicated that the existing metrics were inadequate to address the evolving customers' concerns, and that the loosely connected offshoring model produced high variability among the service levels offered across sites.

Part of the diagnostic pointed to Alpha's inability to adapt its set of customer satisfaction metrics according to changes in its clients' expectations. A second issue lay in the complexity of the cases assigned, as the outsourced offshoring service was configured to manage high volume-low complexity cases, but the incentives (for both Alpha and the service providers) leaned toward sending the increasingly complex cases overseas, which on many occasions, were unable to be addressed by the offshoring sites in a timely manner. A third issue emerged in terms of the quality of support offered by nightshifts in the offshoring locations, as high-performing employees are likely to retreat from those shifts. To address these concerns, Alpha responded with four sets of architectural changes: i) the establishment of a clear strategy to define which support activities were central to Alpha (i.e., complex problems that needed to be retrofitted into future product launches, those involving high-end customers and new technologies), and which contextual tasks were to be outsourced; ii) the development of a new set of customer monitoring metrics, better tuned to changing clients' expectations and to capturing extreme observations rather than mere averages; iii) the creation of a formal system of integration in which a particular group of technicians within Alpha (beyond the liaison manager with the partner's center) were responsible for the customer satisfaction ratings of a specific outsourced offshore site; and iv) the adoption of a regionalization strategy, where service centers in each time zone were supporting work during normal day hours (eliminating night shifts). The senior director of TS explained the integration mechanisms between fully owned and outsourced offshoring units:

> *"We're telling them [referring to Alpha's TS units] at the manager level at least, look you're responsible for all the cases that come in on security. So whether you solve it, or the out-task solves it, you're responsible for that customer's*

satisfaction. And you're responsible for the number. So if your engineer is better leveraged to never solve a single case, but to help the out-taskers solve a hundred of them with high customer satisfaction, that's to your benefit, right. And that's the message we're trying to get across now. But unfortunately it's at a manager level, not at the individual engineer level, right?"

These changes had the effect of developing consistency in the support across TS organizations. With greater integration among support structures, Alpha's management realized that a reduction in the variance across centers was coupled with a slight reduction in customer satisfaction levels. In addition, two pressures were perceived from the environment: one being the competitors that were moving toward proactive service offerings, for instance, by releasing patches before an issue spread between the users; the other was the evolution of customers' expectations toward technological integration, that is, to combine different network services onto one device. Competition called for a strong change in Alpha's model. As posited by Alpha's CEO, *"The transition in hand is moving from a box mentality of break and fix to an architectural mentality of interacting with the customer differently so that it never breaks. So you have to move on multiple planes or multiple dimensions at the same time."*

With the goal of raising customer-level satisfaction, Alpha established two support structures: a Best Practice Team and a Global Consistency Team. The Best Practice Team had the broad mandate of analyzing internal and external support practices in any section of the process in order to identify and improve those most likely to enhance the customer's experience. The team was composed of employees with 18-month assignments who were seen as champions of certain innovations on the operation side. The Global Consistency Team was a small team chartered to define policies and processes for application across regions in in-house and outsourced offshore centers. One of the most significant priorities of the Global Consistency was to simplify and standardize the metrics across centers, to maintain elevated bars of standardization by creating models to follow in common approaches among the centers (which covered 90%

of all cases) and by allowing for 10% of regional uniqueness. Table 5.1 summarizes Alpha's key contextual challenges, modifications in the organizational architecture, and capabilities enabled in each of its stages (initial, middle and advanced).

Table 5.1: Alpha's Process-Outcome Matrix

	Antecedents	Initial Phase	Middle Phase	Advanced Phase
	Key Contextual Factors	**Key Contextual Factors**	**Key Contextual Factors**	**Key Contextual Factors**
ALPHA	**-Rapid growth** (1995-2000). The pace of growth was faster than Alpha's ability to recruit and train personnel.	-Dot.com bubble (2000): Pressed Alpha to **reduce cost per case**. -Providers suggested **low-cost offshore locations**: Mexico, Costa Rica and India.	**-Customer complaints.** While average customer satisfaction was at acceptable levels, there was **large variability in the service levels** received across sites.	**-Customer expectations** moving beyond individual products, as clients require comprehensive networking solutions.
	-Transformation to outsourcing manufacturing: Between 1997 and 2001, the firm moved from a 100% manufacturing of its solutions to a 90%-outsourced model.	**-**Active approach **to partner management as part of the culture**, with significant involvement in the development of leaders in the offshoring site.	-Metrics have not evolved in accordance with customer expectations, as they remained unchanged for more than 10 years.	**-Increased standardization in the service level** caused a slight reduction in average levels of satisfaction.
	-Managerial context: Performance goals established goals in terms of revenue per employee, making it natural to search for outsourced alternatives.	**-Customer monitoring** through: Optional satisfaction surveys, a customer advisory board, and meetings between the CEO and major customers.	-Difficulties to maintain strong offshoring teams to provide support outside the regular dayshift.	**-Advanced competitors** moving toward service offerings, **more proactive** and less reactive.
	Architectural Changes	**Architectural Changes**	**Architectural Changes**	**Architectural Changes**
	-Use of internet troubleshooting tools to provide a first level of support. This set of tools grew to address up to 80% of users' concerns.	**-Creation of an offshore intermediate level of support.** This level addressed up to 60% of the cases not solved by the Internet.	**-Sister organization strategy**: Technicians in the company centers devoted to the most complex issues were also being responsible for performance of the offshored site.	-Established a **Best Practice Team** in charge of best practice identification and replication.
	-1997: The "**fast track engineering FTE**" project, which demonstrated that narrow scope roles can be used to quickly fill out engineering support positions.	**-Firm adopted three distinct suppliers:** Multiple suppliers as a mechanism to minimize risks (if one stops operating) and to leverage negotiating position,	**-Customer monitoring improved** by the development of new randomized tools.	**-Establishment of a Global Consistency team** to define policies and processes to be applied across regions and support structures.
	-1998: **Hired external firms to provide suppor**t from four locations US(2), UK, Australia.	**-Direct responsibility for Alpha managers** in: 1) day to day operations; 2) growth of the supplier; and 3) contract management	**-Adoption of a regionalization strategy**: Each region supporting work on normal day hours	
		Capabilities Developed	**Capabilities Developed**	**Capabilities Developed**
		-Responsiveness to emergent situations -Cultural integration of support agents	-Integration capabilities -Consistency in the support model	-Best practice identification -Process standardization

In synthesis, Alpha's case describes how structure was used with different purposes in the distinct stages of the offshoring evolution. In the initial stages, the organizational architecture tools used included pre-eminent attention to rules and small, but engaged managerial structures, with the purpose of facilitating responsiveness to customer and provider needs. However, as the model was growing in its complexity, and given the evolution in customer expectations, Alpha required functional integration between the in-house and outsourced sites, which would facilitate the achievement of consistency in customer support activities. This process created additional efforts to clarify a strategy to combine in-house and outsourced support and to leverage the best practices between them.

Omega's antecedents and initial stages: Omega had early exposure to offshoring. First through its consulting operations, the firm was involved in projects that analyzed the impact of the digital economy's impact over services, in which Omega's consultants concluded that falling telecommunication rates would open the door to new forms of remote services provided from faraway locations. It also developed preliminary estimations on the savings of moving high-end jobs to low-cost high-skill locations. Its second exposure to offshoring was through the experience of its employees to incipient A&T offshoring emerging in India (the birthplace of the A&T offshoring practice). As a former consultant described it: *"We at Omega saw the opportunity early."*

In 1997, Omega was in the middle of a cost-cutting initiative. In this context, the idea of a centralized Knowledge Service Center (henceforth KSC) from a low-cost location was proposed as a mechanism to attain scale advantages while reducing costs. Global knowledge officers were enthusiastic about the idea, while local managers saw problematic factors, such as a lack of collegiality between researchers and consultants, database incompatibilities, and language differences. A pilot initiative was then established in India with two purposes: i) to provide Omega with firsthand experience in offshoring processes; and ii) to offer Omega with a quick desk capable of providing basic research services that arose during the nightshifts of Omega's main offices in the US and

Europe. The scope of services and low complexity of tasks were configured to facilitate their adoption by local operations. As the founding leader of KSC explained to the local offices:

> *"We are starting with only 10 to 12 people. There is no threat because this will be your back office. We will see how to help it grow after piloting the service for the next 6 to 12 months."*

The key to Omega's offshoring strategy was the use of high-quality resources to gain acceptance from the other offices. For that purpose, KSC continued with an approach originally developed in India's local office, consisting of hiring MBAs to fulfill the research analysts' positions. *"In the Western hemisphere offices, MBAs were consultants, while librarians were research and information staff, and there was a divide in the middle. In India, we sought to put MBAs on either side,"* argued the founder of the center. This was possible due to opportunities in tapping talent pools and low-cost structures available in the Indian market. During KSC's startup, Omega made conscious efforts to replicate the processes, norms, and status from the consulting practice. Simultaneously, KSC was flexible in adopting the local practices in order to avoid conflicts with the Indian culture. At this stage, *"even the office furniture was sourced overseas to follow Omega's standards,"* argued a Vice-President of KSC. She continued, *"At the same time, the center experienced the creation of additional layers in the hierarchy, to satisfy the Indian custom of being promoted yearly."*

To attract requests from other offices, the leaders of KSC focused on leveraging their informal networks to attract more internal business. In parallel, they concentrated their formal efforts on capturing work from Omega's largest and most overworked local knowledge offices, whose own teams were unable to satisfy the local demand. The quality of work provided at KSC was distinguished from the mechanistic approach normally characterized by the local research operations. Having analysts with MBA degrees created efficient interactions with consultants, as the former were able to provide the latter with better targeted information, which was available overnight. The use of

highly talented employees, however, was not the sole advantage of the center. KSC also focused on changing the "cottage industry" status of the local research work not only by hiring superior-quality resources, but also by prioritizing good execution and standardization of the service delivery process. As pointed out by KSC's founding leader in an article about his tenure:

> *"Quality standards need to be implemented at every step in the workflow and at every stage of ramp up... [As the services evolve,] quality expectations become more detailed and assume more prominence in service delivery."*

New metrics and service process standards were established for knowledge work, and KSC required Omega's consultants to evaluate the quality and usefulness of the information provided by its analysts. The evaluation system established served not only to monitor the quality of the analysts' work, but also created incentives for analysts to develop skills in specific areas of knowledge in a way that promoted KSC resource specialization. A KSC analyst explained the mechanism by which incentives were aligned:

> *"If you work with the same people over and over, it happens to be in the same field, same industry same function, by default you start developing an expertise just by understanding. In doing that you get recognized as the area expert [...]. I know that doing a good job will get me a good feedback, and that would get me recognition and better career prospects."*

As KSC became a more important part of Omega's structure, there was a higher need to align it with Omega's general strategy and systems. In this context, several organizational changes were made to strengthen KSC's ties with country offices that remained unconvinced of shipping work to KSC (and hence, to realize additional scale advantages and synergies). Among the formal channels implemented were 1) the creation of an international advisory board with partners from dispersed country offices; and 2) the standardization of HR policies between the center and local research operations. Informal interactions were also used to attract attention from consultants

worldwide, which is illustrated in the extensive traveling agenda of KSC's manager, who invested up to 40% of his time on trips to distant offices promoting KSC and listening to consultants' needs.

All efforts developed on the organizational side were instrumental for the emergence of a new set of knowledge capabilities at Omega. KSC's contribution to the provision and codification of knowledge created the possibility for local offices to compare and contrast information against similar experiences existing in the network. For example, knowledge about finance was particularly concentrated around global hubs, such as the UK and US offices, and the development of a centralized database facilitated access (to this knowledge) to other country offices. In addition, the entrepreneurial experimentation afforded to KSC facilitated the attainment of: 1) a very competitive cost base; 2) a talented workforce with competencies not necessarily available elsewhere in the firm; and 3) advantages of scale, thus providing the first comprehensive base of written information available for the entire firm. Table 2 presents Omega's key contextual challenges, modifications in the organizational architecture, and capabilities enabled in each of the stages.

Table 5.2: Omega's Process-Outcome Matrix

	Antecedents	Initial Phase	Middle Phase	Advanced Phase
OMEGA	**Key Contextual Factors**	**Key Contextual Factors**	**Key Contextual Factors**	**Key Contextual Factors**
	1997: Omega was implementing a **cost-cutting program.**	**-Resistance from local managers** in three areas: language issues, database conflicts, and a lack of familiarity with consultants.	-There was a **challenge in providing content** to retain talented employees, as they were reaching a career ceiling.	**-New opportunities created** by Big Data and knowledge that could be packaged and offered to clients
	1994-1997: **Omega produced some studies** on the effects of falling telecommunications rates in the global allocation of functions.	-The proposal was reviewed several times and obtained **support from partners and global knowledge managers.**	-Other areas of the firm included controlling knowledge assets tightly, limiting the access to it	-The center's cost structure afforded the development of services in areas where the firm was not strong, which once more heightened the career ceiling.
	-Some consultants developed **preliminary estimations on the savings of moving jobs** to low-cost, high-skill locations.	-Initial approval from the supply side did not include the acceptance of potential buyers (consultants).	**Slowing growth rates** required pursuing new opportunities to generate additional volume.	**-Cannibalization concerns** among services provided by Omega's offshoring organization
	Architectural Changes	Architectural Changes	Architectural Changes	Architectural Changes
	-In 1996, the profile of India's local knowledge office was revamped by ex**changing college grads for MBAs**.	-A **Pilot initiative**, with 10-12 MBAs, **was approved** with an operating budget of less than 250K.	**-Integration:** Overseas offices controlling knowledge acquired profit and loss (P&L) responsibility for research teams in the offshore entity.	**-Centers of Excellence** (COE) established in a number of areas
		-Task complexity was limited to the support of quick information needs. It was sold as "back office of local centers."	**-Expansion of the service scope,** which pushed growth to 170 analysts and provided grounds for deeper specialization	-Began experimenting in **services directly to clients**, or with the intermediation of consultant teams, with mixed results
		-Metrics and standards were established to secure service levels. Later they were **used as "signals**" of proficiency.	-Change in skillsets (econometricians and statisticians) hired to **invigorate specialization**	
		Capabilities Developed	Capabilities Developed	Capabilities Developed
		- Ad hoc provision and codification of knowledge -Entrepreneurial experimentation	-Knowledge integration ability -Data-crunching capabilities	-Provision of advanced research and analytical services

Omega's middle and advanced stages: By 2004-2005, the growth of KSC reached a plateau. Slowing growth rates required new changes in the organization to enhance additional volume. In addition, the need to retain high-performing employees required the opening of career paths that would motivate personnel to continue working for Omega. This required increases in the scope of KSC's tasks, in particular, by opening its access to develop tasks with higher levels of complexity. However, access to these highly valued activities was owned by the Industry and Functional Groups, which maintained tight control of the most sophisticated resources and tasks. To increase the involvement of the Industry and Functional groups, a structural change was adopted so that the practices would take ownership of the activities related to their respective fields (evaluation, payroll, profit and losses). For the center, this meant voluntarily reducing its authority; however, it offered an opportunity to enhance the level of activity integration within these practices and increased its relevance. As of that moment, the Functional and Industry Groups were able to select the resources they wanted to integrate within their teams. As a consequence, investments in skills grew, and more development opportunities for employees were offered. As described by a KSC manager:

> *"We had built deep capabilities, but our people were beginning to hit a career ceiling. People had grown to SRA (Senior Research Analyst) level and in a few cases Specialists. To go beyond those levels required two key enablers – ownership of proprietary knowledge assets, which were controlled tightly in the Functional and Industry hubs and mentorship by their Leaders. So, we came to a conclusion that for our research teams develop to their full potential, they had to be owned by them."*

The increased integration with the Functional and Industry hubs fostered innovations in KSC in areas as diverse as risk assessment, business diagnostics, and data intensive analytics. Development of new risk assessment methodologies and business diagnostic tools gave Omega a substantial advantage over its competitors. These risk assessment methodologies were significant, as they provided the firm with a proprietary set of tools to evaluate risks (i.e., credit, financial) with 60-70% more accuracy than the industry

standards. Business diagnostic tools emerged as a method of assessing the significance of "best practices" used across Omega's clients to separate real performance boosters from fads that lacked effects on productivity. Data- intensive analytics became a major contribution to Omega's core capabilities. The idea emerged as the following sentiment, as expressed by a KSC manager: *"I realized that our analysts had better Excel skills than what I ever had as a consultant and were doing a lot of the analysis that consulting teams used to do."* This idea evolved to become a major theme of the firm. The development of a group focused on data-intensive problems required a change in the KSC hiring profile, as econometricians and statisticians were sought, given their expertise in the use of advanced tools (e.g., SAS, STATA) and techniques (e.g., cluster analysis, Monte Carlo simulations) in the analysis of large datasets.

Previous success was instrumental in the development of a strategy whose objective was to position KSC as a value-generating unit in the provision of advanced research support. As a result, multiple Centers of Excellence (COE) were established, with the purpose of supporting the creation of new competitive advantages for Omega.

> *"We looked at two sets of areas for COEs to make an impact - where Omega was losing to competitors and those that were likely to grow significantly in future. We finally identified three areas where we set up our first COEs. ... We started the COEs with existing hi-potential internal talent. We brought in highly specialized talent who were acknowledged industry experts with over 15 years of experience. Many of them were brought onto the 'Expert Consultant' track. It was a big risk as this was a dramatic departure from our existing people model."*

Creating value for clients required shifting the paradigm under which KSC was established, which was that of cost reduction, and changing it to one that would be at the forefront of knowledge development for Omega. However, concerns were raised about the risk of cannibalization on client relations, and the approach was substituted for one in which services were developed with the intermediation of local offices. Different incentive structures made the development in this direction challenging.

In sum, the evidence suggests that changes in Omega's organizational architecture had played a fundamental role in the development of capabilities involving the systematic codification and integration of knowledge. First, both the profile of the initial researchers and the conscious effort in operational excellence were crucial in achieving the levels of legitimacy necessary for the acceptance of KSC. Second, the increased functional integration facilitated the transition toward more complex activities. Third, there was a strong entrepreneurial effect, as managers were forced to use informal networks to gain support from the dispersed offices, and at the same time, develop a strong local organization.

5.5 Discussions

5.5.1 Organizational structure effects in capability lifecycle

In this section, I compare the organizational structure tools used in both firms (Alpha and Omega) during their lifespans in order to explore the commonalities and differences in the design changes taken at each of the key stages defined. The wide variation between case characteristics (i.e., in-house talent driven vs. outsourced cost-reduction approaches) is crucial in recognizing the commonalities among the distinctive process, while their similarities in the activities involved, country of origin and destination, and comparative firm size are critical to the purpose of this section, which is to develop general propositions comparing and contrasting in-house and outsourced offshoring practices in their different stages of capability development.

Initial stage: During the initial stage, parent firms experience high levels of uncertainty from the offshoring operation, and its focus is mainly on evaluating the potential for realizing the advantages promised with the decision to offshore. Implementing offshoring decisions requires significant effort/time to achieve targeted costs and appropriate service levels (Hutzschenreuter, Lewin, & Dresel, 2011b); hence, firms are likely to maintain boundaries involving the levels of complexity and interdependency of

the tasks offshored. This is performed in order to limit the risks of business disruption that can result if the implementation does not go well.

Consistent with existing theory, the low levels of complexity and task interdependency incorporated in this stage allow firms to coordinate their work mainly based on performance rules, such as metrics and standards (Thompson, 1967). Beyond Thompson's description of coordination based on rules, the two cases illustrate a deeper role of metrics in the competence development and legitimation of offshoring. First, in both cases, narrow roles and boundaries at the level of task complexity created larger interest in the individual tasks assigned to employees, and proficiency in their execution became the center of managers' attention. Metrics are the mechanisms that tie the execution of an individual and subunit's tasks to the overall purpose of the offshoring entity. In addition, metrics fulfillment and emergence is used as a legitimizing mechanism of offshoring. This is particularly evident in Omega's case, where the establishment of new metrics to rate productivity was used as an indication of "domain expertise" and as a fundamental step in the process of becoming the best in a class organization.

In Alpha and Omega, a second aspect that supported the emergence of offshoring capabilities was the use of formal symbols and processes to embed the offshoring sites into the firm's culture. Identification as "part of the firm" allowed for the consistent use of firm rules and values to direct offshore employees' behaviour, even if they were not directly paid by the firm. In Alpha and Omega's cases, this is appreciated in aspects such as hiring practices, training materials, email, and even the physical furniture to resemble the standards of the main firm. To facilitate the translation of firm culture in the emerging site, both Alpha and Omega used relatively flexible structures and a highly entrepreneurial leadership to provide quick responses to environmental or supplier considerations.

While there are important coincidences at the initial stage, both cases present significant differences, as well. Beyond the model adopted (in-house vs. outsourced), the cases differ in their decision approach, as Alpha followed a top-down path, as a consequence of the restrictions imposed by the revenue-per-employee performance metric, while in Omega, ideas grew from the bottom of the organization. The speed of change is also different, as Alpha adopted an approach in which a large size and geographical dispersion were embraced right from the start; on the other hand, Omega proposed a modest start and grew in a staircase pattern. However, based on the existing comparative patterns, I establish the following proposition:

> *Proposition 1:* In the initial stage, the inception of capabilities, both for outsourced or in-house offshoring is likely to rely on complementary attention directing mechanisms:
>
> *A.* Narrow scope roles to guide individual's behaviors
>
> *B.* Performance metrics to guide group actions
>
> *C.* Actions that facilitate the translation of the firm's culture to the new site to facilitate exchanges among groups.

In the case of offshoring entities, the incipient capabilities emerging from the processes of relocating resources to a faraway destination are likely to have an impact on the volume and responsibilities assigned to the entity. This change occurs as experimental activities trusted to it show levels of performance that match the firm's expectations. It is highly likely that the firm will be motivated to increase volumes or allocate additional activities with similar or moderately higher levels of difficulty and business impact, given the potential advantages of cost reduction and resource access made available by the relocation. In addition, offshoring expansion is not only beneficial as it provides operational savings for the firm, but it also heightens the career ceiling in the offshore location, facilitating the retention of talented employees and the reduction of attrition, which in turn creates stability in the existing operations. However, the offshoring expansion process requires: i) the existence of a structure that provides standard operating processes to guide the addition of functions or geographies with minor impacts to the

operative complexity; ii) the incorporation of tasks with a high level of interdependency, which requires the maintenance of stronger connections with centers that have expertise or data relevant to their execution; and iii) the support and active involvement of the units that own these tasks to facilitate the changes.

As both cases illustrate, initial growth is likely to be sustained by the use of flexible structures that efficiently respond to the idiosyncratic conditions of the locations and suppliers. However, the existing analysis suggests that organizations face a decline in savings achieved when the scope of offshoring grows (Lewin et al., 2011), as was the case for both Alpha and Omega. Hence, I advance the argument that flexible and responsive establishment structures, which facilitate initial success, become increasingly complex when organizations expand their functional or geographical scope. As shown in the two very dissimilar contexts faced by Alpha and Omega, leveraging incipient offshoring capabilities requires an increase in functional integration so that emerging capabilities can be exploited at a larger scale in the firm. Proposition 2 is established as follows:

> *Proposition 2:* The emergence of capabilities, in either in-house or outsourced offshoring, leads to increased functional integration between the offshoring entity and other units in the firm.

As shown in the experiences of Alpha and Omega, functional integration of offshoring entities is pursued to facilitate the flows of information and access to knowledge assets held by technically advanced units. Both experiences show increased levels of functional integration 1) to cope with the need for improved customer service; 2) to compensate for a lack of standardization and expertise; and 3) to increasingly create sophisticated positions in the offshoring sites that facilitate the retention of the most talented employees. However, both experiences require different levels of integration, depending on the objectives pursued in each case. Alpha implemented a modest level of functional integration, directing the attention of the firm's individual TS managers to the customer satisfaction achieved by the individual outsourced offshoring sites. However, integration

was loosely defined as "*whether you solve it, or the out-task solves it, you're responsible for that customer's satisfaction,"* without imposing a particular frame at the level of Alpha's engineering teams (instead, it was managed at the discretion of the TS manager). Omega, on the other hand, adopted higher integration levels by providing external subunits, not only with full profit and loss responsibility over subsets of employees in the offshoring entity, but also with direct control over human resource practices in recruiting, payroll and training applied in the offshoring site. Combined, the cases suggest that functional integration varies with the strategic goals and the coordination needs among interdependent activities.

I argue that increased functional integration contributes to solidifying capabilities that may emerge in the initial stage. Two processes support this logic. First, the need to integrate operations across distances suggests the application of tacit coordination mechanisms (Srikanth & Puranam, 2011), which implies investments in creating common understandings that facilitate the quick reach and transfer of information across the firm. Functional integration fosters the exchange of resources and skills among subunits, and allows offshoring entities to access information that is dispersed across the firm. Given that similar types of information must be transferred many times to different agents, offshoring organizations are likely to push toward increased codification to facilitate the transmission of knowledge. In that direction, Alpha and Omega relied on repositories of technical information that were available throughout the firm; these systems became a base for the generation of new knowledge and were used for customer support. Second, increased offshoring integration facilitates greater alignment and interactions with other subunits in the firm. As the number of interactions with other subunits grow, opportunities for mutually beneficial collaborations also increase (Monteiro, Arvidsson, & Birkinshaw, 2008), as the relatively narrow scope of tasks typically assigned to offshoring employees facilitate the development of skills and the advancement of specialization. As a result, the offshoring entity becomes a repository of firm knowledge, consolidating information and knowledge exchanges in its particular areas of expertise. Proposition 3 summarizes the logic, as follows:

Proposition 3: Increased functional integration between the firm and its in-house or outsourced offshoring centers fosters the development of offshoring capabilities by: a) facilitating information exchange; and b) raising awareness about the opportunities of deeper specialization.

When compared with the initial stages, increasing divergence in the development of structural modifications is expected. The logic of growing differences is rooted in three factors: 1) the possession of a better-defined offshoring strategy, either by the adjustment of deliberate goals imposed at the beginning of an offshoring journey, or by changing expectations as emergent circumstances pave the definition of an organization's future plans (Henry Mintzberg, 1978); 2) idiosyncratic conditions, in particular, the outcome of strategic positions adopted in the initial stages of offshoring (ownership mode, countries selected and functions included); and 3) the rate and potential of the development of capabilities (Rockart & Dutt, 2013), which is likely to require different structural adjustments, whether they promise a high or low impact to the organization and the relative speed of its development.

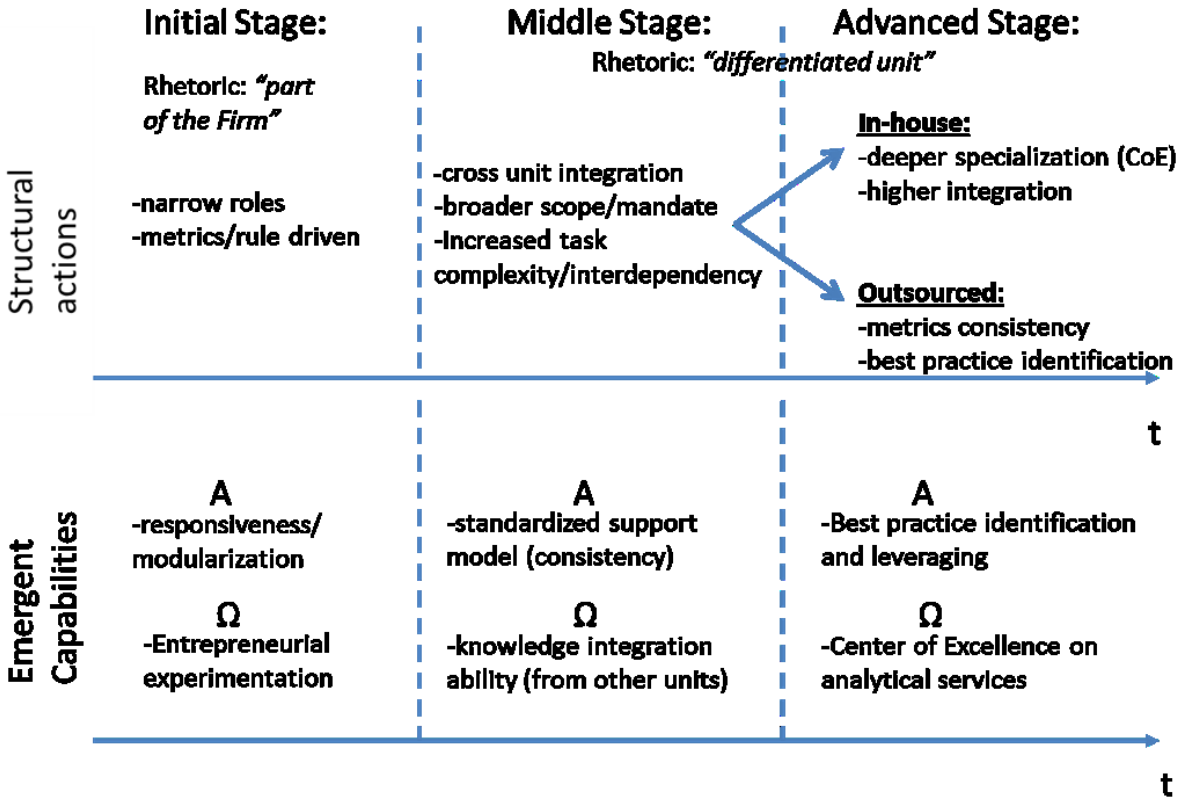
In the cases compared, both offshoring organizations developed strategies seeking to complement their firms' services; however, the specific positioning and their ownership strategies influenced them to adopt increasingly divergent patterns. In Alpha's case, its offshoring strategy was to develop a low-cost support structure to address repetitive, middle complexity requests that could not be addressed either by technical notes on the Internet or by the firm's high-end customer support. Its evolution in the latter stages sought two objectives: 1) to facilitate Alpha's TS services in core activities, while maintaining strong outsourced support for non-core services; and 2) to achieve a process of standardization and best practice application across services. In Omega's case, KC's strategy had focused mostly on developing new services that were not currently being offered by the firm itself. For the most part, the emergence of competence centers was due to the ability of a low-cost center to develop a value combination that was different

from the one developed by the firm, and as such, it was able to complement a high-end value. To summarize patterns in the latter stages I establish the following proposition:

> *Proposition 4:* In the latter stages of development, in-house and outsourced offshoring arrangements follow increasingly divergent paths in their organizational architecture decisions and attention channels when compared to those used in the earlier stages of development.

In conclusion, propositions 1 to 4 describe a strong interrelation between capability emergence and organizational structure changes. They highlight how incipient capabilities in an offshoring entity, which enables performance and growth, are likely to impact the organizational structure of the offshoring entity by triggering stronger integration to other business units. Increased integration, in turn, affects capability development by incorporating a wider set of experiences which strengthen specialization processes in the offshoring subunit. The model also suggests how structural patterns become increasingly divergent as offshoring evolves. Figure 5.1 illustrates the structural actions adopted during the development of offshoring capabilities. It seeks to compare the breadth of structural actions to incorporate at different stages, starting from relatively standard choices in initial stages to more idiosyncratic decisions in the latter ones.

Figure 5.1: Structural actions adopted and emergent offshoring capabilities in the period under analysis



5.6 Conclusions

The goal of this paper was to explore the role of organizational structure in the capability lifecycle. I compare the evolution of the offshoring experiences of two organizations that had considerable success in implementing technically complex offshoring practices, but who adopted diametrically opposite approaches to offshoring (in-house offshoring, which focused on the attraction of highly skilled individuals in a low-cost location vs. outsourced offshoring, whose goal followed a cost-minimization approach). This logic of maximum variation was adopted with the purpose of combining the advantages of a longitudinal analysis with a detailed account of the architectural decisions adopted and the capabilities facilitated by them.

The analysis reveals three findings. First, it describes the intertwined effects between the emergence of offshoring capabilities and modifications in the organizational architecture. Moreover, in this exploratory analysis, I find that proactive adjustment in the organizational structure facilitates the capability development process, but at the same time, changes in the set of capabilities require modifications in the attention structures used to leverage capabilities across the firm. As in-house and outsourced structures maintain controls on different sections of the process, the resulting capabilities are likely to reside in different subsections of the process. While Omega's analytical capabilities reside inside the offshore subunit, Alpha's standardization and integration are managed in structures managed by the main firm. Second, the most visible effect in the structure as capabilities emerge is a relative increase in the level of functional integration, a process akin to the classic differentiation-integration model of Lawrence and Lorsch (1967): an increase in the need for functional integration emerges as resource specialization unfolds. In addition to presenting a longitudinal view of this process, this analysis describes environmental circumstances driving the change (i.e., problems of output variability and complexity as the operations grow), and their consequences on capability generation. Third, I find that for the case of offshoring, while there is relative similarity in the organizational architecture mechanisms adopted to foster development in the initial stages, the repertoire of potential variations in communications, interactions, and authority relations becomes larger as the subunits adopt a more differentiated role within the firm.

As with all research, it is important to recognize a number of limitations affecting this study. First, the use of a comparable case study design limits the generalizability of my findings. The practice of A&T offshoring requires organizations to start from scratch on their organizational architecture decisions, which is not a common situation for business units that are established. Moreover, even in offshoring, only a few firms are able to generate superior value (Lewin et al., 2011). Yet, the particular advantages of "illuminative" cases may have certain insights about the interrelation among capabilities

and organizational structures, which can open possibilities for further research (Patton, 2002). Second, as described in the methods section, research involving the recollection of past accounts always faces the risk of retrospective bias considerations (Huber & Power, 1985) and the embellishment of reality (Miles, 1979). These data collection issues were mitigated by the use of triangulation techniques and non-disclosure of the main research purpose.

To conclude, this paper presents a first effort to analyze how changes in organizational structure in a business unit enable the development of capabilities in an offshoring setting. Beyond a mere facilitating role, this paper argues that structural modifications are a fundamental part of the capability development process, as an exclusive focus on continuous practice and skill improvement is insufficient in attaining the successful trajectories reached by Alpha and Omega. By drawing on these cases, this paper illustrates that high-quality resources and cumulative learning must be paired with a responsive organizational architecture that enables capabilities to take off. By analyzing and developing a model that includes structural modifications in different stages of development, this framework explores the context, actions, and effects of architectural changes on capability development.

CHAPTER 6: CONCLUSIONS

6.1 Summary of the contributions:

The objective of my dissertation has been to examine the phenomenon of fine-slicing of firm activities with regard to the architectural characteristics underlying its formation, evolution, and capability development process. The initial premise motivating this thesis is that while a large body of knowledge has been established to support the geographical and functional allocation of a firm's activities, little emphasis has been placed on understanding the challenges imposed on its organizational architecture by the trends of value chain slicing and the global distribution of work (Greenwood & Miller, 2010; Jensen et al., 2013; Lewin & Peeters, 2006). Through the analysis of four research questions: (i) how does the *initial geographical and functional scope affect the specialized subunit's performance? (ii) how does the performance of the current operations influence the geographical and functional expansion in offshore entities? (iii) how do changes in the organizational architecture of a specialized subunit affect its capability development process? And (iv) how are the three questions above affected whether we consider a fully owned or an outsourced ownership mode? This* dissertation sheds light on the different stages of fine-slicing development and the alternative impacts of selecting in-house and outsourced offshoring choices. Overall, this thesis further moves the boundary of knowledge that explores fine-slicing from a process perspective, and hence expands our understanding of the mechanisms by which the activity disaggregation trend progresses. I use the practice of administrative and technical services offshoring to empirically test my hypotheses. The multi-level nature of Offshoring Research Network data, which contains information at the firm, function and implementation level, along with qualitative information captured from case studies, has provided this thesis with a unique advantage to explore these organizational processes from a fine-grained perspective.

Chapter 3 adopts the perspectives of the Resource Based View and Complexity Theory in an effort to examine the effect of alternative geographical and functional scope decisions over subunit performance, while comparing these impacts under fully owned and outsourced offshoring settings. First, the identification of three distinctive effects of configuration over subunit performance (i.e., structural complexity, geographic and functional scope) is significant, as it separates the distinctive layers affecting subunit performance. Second, and more importantly for the fine-slicing phenomenon, the paper contributes to differentiating between fully owned and outsourced arrangements by testing a simple, but perhaps overlooked implication of captive versus outsourced offshoring configurations: in-house offshoring arrangements are more likely to benefit from the scope advantages of a single location, while outsourced settings are better suited to exploit competitive advantages across multiple locations. Third, an examination of impacts at the subunit level rather than the firm level supposes a step forward, not only for the fine-slicing analysis, but more generally for the literature addressing the impact of multinationality effects on performance (Cardinal et al., 2011; Peng & Delios, 2006), as it advances the operationalization at the subunit level, thus addressing a criticism of the incorrect level of operationalization in the existing literature (J.-F. Hennart, 2011).

In addition, Chapter 3 has a direct and powerful implication in the internationalization analysis developed in Chapter 4. It not only suggests that ownership decisions have further implications on the degree of geographical dispersion that an offshoring project can potentially reach, but also highlights the fact that learning differences exist when a firm adopts in-house versus outsourced offshoring decisions to execute specific projects. Building upon this intuition, Chapter 4 draws on the International Process Model and Performance Feedback Theory to explain the patterns of geographical and functional expansion under fully owned and outsourced offshoring. Three contributions need to be emphasized from this paper: first, it contributes by identifying the influence that the achievement of operational and profitability aspirations has in offshoring expansion trajectories, in both in-house and outsourced offshoring settings. Second, it differentiates the processes of market-seeking and upstream and support activity internationalization.

Third, Chapter 4 adopts a behavioural perspective in the analysis of fine-slicing, showing that decision-makers are likely to guide subunit expansion trajectories based on simple aspiration-fulfillment rules.

Chapter 4 presents a streamlined version of the trajectories of offshoring expansion, which is useful for the identification of key cues and rules guiding the process; however, it lacks richness in describing a more important phenomenon, which is the emergence and solidification of fine-slicing competencies that are at the root of new forms of global competition. This is the focus of Chapter 5, which presents a comparative case study on how architectural changes affect the process of capability development in fine-sliced subunits, in both in-house and outsourced settings. This study sheds light on the differences between the architectural mechanisms used in the early, intermediate, and advanced stages of offshoring to enable the development of capabilities. Chapter 5 increases our understanding of the structural mechanisms or channels used to direct attention in a way that fosters the development of capabilities. The key contribution of this exploratory paper is to document that, despite the differences between in-house and outsourced offshoring, the strategies of capability development are similar, starting with intra-unit mechanisms that are later complemented by inter-unit mechanisms, which seek to groom emerging competencies and leverage their effects. A second insight of Chapter 5 is the recognition of the intertwined effects between capability development and organizational architecture, in that not only does an increase in the responsibilities assigned to a fine-sliced subunit respond to better operational execution (as suggested in Chapter 4), but also organizational architecture is a tool that can be used to focus organizational members' attention in ways that underpin the capability evolution process.

6.2 Implications for management practice:

This thesis provides direct implications for organizations adopting globally distributed structures. While the practice of offshoring has been growing tremendously within the last 20 years, and the literature has followed suit (Hätönen & Eriksson, 2009; Schmeisser, 2013), in reality it is still difficult for firms to deliver superior value from its offshoring

endeavors (A.T.Kearney, 2007; Lewin et al., 2011). The empirical goal of this thesis is to lead managers to see beyond the mere locational and governance decisions in offshoring, and instead adopt a design view to fine-slicing that is sensitive to architectural variables (e.g., functional scope, geographical scope, and design tools) and learning processes (about contracts, providers, locations, and architectural changes) that not only facilitate a smooth startup in the execution of offshoring, but also empower the managerial intentionality in shaping its evolutionary path.

My dissertation presents, in my opinion, five key takeaways to the managerial practice. First, this thesis contends that decisions regarding functional and geographical scope support project profitability if they are tied to the ownership structure selected (i.e. in-house or outsource). For managers, this implies that firms' adopting in-house offshoring are better suited to profit from scope advantages by establishing multiple functions in a given country, while firms relying in outsourced offshoring settings are more efficient to exploit resource advantages in multiple locations.

Second, the analysis on this thesis sustains that offshoring structures with lower levels of complexity are more efficient than the structures with highly complex offshoring structures in its initial establishment. This result advices managers against aggressive projects incorporating multiple locations, functions spanning multiple knowledge bases and large number of employees; as they all strain the decision maker's ability to coordinate, monitor, and control project profitability.

Third, this thesis underlines the importance of experiential knowledge in determining the expansion patterns of offshoring projects. This aspect is significant because it suggests that even in an era where information and communication technologies have significantly facilitated the access to multiple types of information about locations, it is still the experience gained by the firm what is considered of superior value when defining expansion paths. The managerial implication of this finding is that organizations must privilege strategic processes built upon simple rules that quickly incorporate the learning

obtained during the expansion rather than a priori grand-level strategizing, which invests excessive resources on the development of a global strategy footprint before starting the actual expansion. There are two issues with this latter approach: i) its effectiveness is diminished by the complexity of the organizational context (Larsen et al, 2013) and ii) such an approach may create rigidity in the firm's incorporation of previous experiences when defining subsequent actions.

Fourth, this work advocates for an active use of organizational design mechanisms as a tool to facilitate capability emergence. It advises decision-makers to adopt a proactive role that includes the application of changes in the offshoring structure that guide managerial attention towards the capability development process. In particular, it suggests supporting the initial stage with narrow scope roles, clear performance metrics and a consideration of the firm and local culture to support incipient capability emergence, and then progressively integrate and standardize the different offshoring sites to elicit processes of capability selection and retention as the offshoring organization grows.

Fifth, across all the empirical chapters, this thesis offers a detailed account of how the in-house/outsource decision affects other organizational choices, in particular the initial scope, the adoption of alternative internationalization paths and the organizational design tools that contribute to the capability development process. Grouped, these insights advise managers to maintain a close alignment between their ownership strategy and other organizational design characteristics; in aspects such as the initial functional and geographical dispersion, the focus on learning that is either country-specific or general knowledge and the types of organizational changes that can be adopted under each ownership mode in order to facilitate the capability development process.

6.3 Implications for future research:

As described in the introduction, I see this dissertation as a first step in the examination of optimal disaggregation paths and the search for superior fine-slicing configurations from a process perspective. In light of the developments presented here, I see opportunities for future research by addressing the limitations of the three empirical studies presented here. In particular, I see potential value in extending the research to explore learning cues and mechanisms to incorporate past experience into the development of offshoring trajectories. The view exploited in Chapters 3 and 4 is focused on initial experiences and the firm's reactions to those experiences; however, this view would be enriched by expanding the learning horizon, illustrating how firms combine experiences in time, and how these experiences modify the importance they give to the different indicators (e.g., operational or financial performance). Another limitation worthy of additional research is to analyze the influence of environmental changes such as task standardization, processes commoditization, and innovations driven by service providers, as their effects were not analyzed in this thesis. A final limitation is the weak focus placed on integrating the interdependence concept in the disaggregation trajectories. Interdependencies have multiple potential effects, as they enhance communication between sites, facilitate opportunities for assessing a site's capabilities, and increase awareness for future opportunities. I join other scholars (Caspin-Wagner et al., 2013; Kumar et al., 2009) in suggesting that a full understanding of interdependence effects on performance is a promising area for future research.

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