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Fostering Dynamic Capabilities of SMEs

–The Impact of Inward International Licensing on Absorptive Capacity and Networking Capability: A Multiple Case Study in Pharmaceutical Industry

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Abstract

Resource limitation and inadequate capabilities are the SME's major problems. On this basis, alliances as vehicles of inter-firm collaboration provide opportunities for SMEs to obtain complementary capabilities and critical resources to overcome resource limitations. In this respect, examining the extant literature on non-equity strategic alliances shows that very few studies have empirically examined the impact of these alliances, such as inward international licensing (IIL) on SMEs' dynamic capabilities (e.g. absorptive capacity and networking capability) in developing context. Consequently, to close this research gap, the purpose of this study is to examine and explore the major impacts of inward international licensing (IIL) on dynamic capabilities of SMEs, with focus on absorptive capacity (ACAP) and networking capability (NC) in a developing economy context (Iran).

This study is focused on pharmaceutical SMEs involved in international business activities through inward international licensing (IIL). The study is explorative, qualitative and elaborative in nature. The dominant analytical approach in this study was abductive. Given the research type (nature), a multiple-case study was selected as an appropriate research strategy to achieve the research purpose and objectives. All cases were selected purposefully. The data were collected from four pharmaceutical SMEs (licensees) with licenses from European pharmaceutical large-scale enterprises (LSEs). The results of the first part of this study reveal that in all cases studied, inward international licensing (IIL) has a strong effect on absorptive capacity (ACAP) and networking capability (NC). In this regard, all absorptive factors (AFs), namely acquisition, assimilation, transformation, and exploitation, have been enhanced by influenced contextual factors (CFs) of ACAP. The SMEs' management and strategy, human resources, internal knowledge, and inter and intra-firm relationships, as several contextual factors (CF) of ACAP, have been forcefully influenced by inward international licensing (IIL). The second part of the empirical results indicates that the international licensing alliance between SMEs and LSEs helps the development of SMEs' networking capability as well. This was particularly significant in development of the main components of networking capability, such as relationship initiation capability (RIC) and relationship developing capability (RDC).

Key words: *absorptive capacity, networking capability, inward international licensing, dynamic capabilities, SMEs and Iran*

Acknowledgment

After graduating from the faculty of chemistry and working in the pharmaceutical and chemical industry, particularly as a manager, I understood that the knowledge of chemistry could be necessary but not enough for effective management in this industry. Therefore, something else was needed, and it was knowledge of management and business. In order to overcome this problem, I started to study management. Several short-term courses in different areas as well as a set of books were studied. Fortunately, I was admitted to the MBA ProMa program offered by Linköping University. It was very interesting to take part in a systematic problem-based learning program, which I found very useful and which contributed to my industrial insight. However, I had not found my missing piece yet. Afterward, I made a very risky decision in my life to learn more, starting a new educational journey. Soon, I found myself within the industrial marketing division at Linköping University, a great research environment with very nice people. I attended many PhD courses, seminars and conferences looking for the missing piece. Two and a half years passed in a blink! And then, my licentiate thesis emerged. During this journey, many people helped me and I owe great thanks to them all.

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Abbreviations used in this study

ACAP	Absorptive Capacity
AFs	Absorptive Factors
BPs	Business Partners
CFs	Contextual Factors
CEO	Chief Executive Officer
DC	Dynamic Capabilities
DCV	Dynamic Capabilities View
GDP	Good Distribution Practices
GLP	Good Laboratory Practices
GMP	Good Manufacturing Practices
GSP	Good Storage Practices
HR	Human Resources
IIL	Inward International Licensing
IT	Information Technology
IVR	Intelligent Voice Response
LSEs	Large-Scale Enterprises
MOH	Ministry Of Health
NC	Networking Capability
NFs	Networking Factors
OIL	Outward International Licensing
PDD	Pharmaceutical Due Diligence
RBV	Resource-Based View
R&D	Research and Development
RDC	Relationship Initiation Capability
RIC	Relationship Development Capability
RTC	Relationship Termination Capability
SMEs	Small and Medium-sized Enterprises
SOPs	Standard Operating Procedures
URs	User Requirement Specifications

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1 Introduction

This chapter begins by departing from the importance of SMEs and the role of firms' capabilities with focus on dynamic capabilities in the context of SMEs. This is followed by a discussion of the challenges of capability development in a firm. Thereafter, in order to overcome these challenges, strategic alliances as a considerable alternative to enhance and develop capabilities are introduced. Among strategic alliances, inward international licensing (IIL) (as a non-equity alliance) is highlighted as an effective tool, particularly in SMEs, to improve firms' capabilities in developing context. Following this perspective, two critical dynamic capabilities, absorptive capacity (ACAP) and networking capability (NC), are addressed as the research purpose. Then, the possible impact of IIL on SMEs' capabilities with focus on ACAP and NC is discussed as a potential research problem in a developing economy. This leads to the identification of associated research gaps and development of the research purpose and research questions (RQs). The final section of this chapter deals with the research delimitations.

1.1 Background

It is evident that most of the businesses in the world are small and medium-sized enterprises (SMEs). SMEs play a key role in economic development, innovation, employment and social integration, whether in developed or developing countries. For instance, according to the OECD (2007), more than 95% of the world's business structure is formed by SMEs. Considering the importance and situation of SMEs, focusing on their problems is one of the priorities and concerns of governments, managers and researchers. This is true for Iran, given its developing context. In Iran, SMEs (firms with fewer than 500 employees) play almost the absolute business role (99.9%) within the structure of the national economy (UNIDO, 2003). In line with this reality, SMEs form the main body of all industrial sectors in Iran. For example, in the pharmaceutical industry, the value of the pharmaceutical products market is about US\$ 4.18 billion (Monitor, 2012). In this market, more than 98% of firms are SMEs, and the biggest pharmaceutical company in Iran is Darou pakhsh pharmaceutical manufacturing company, with about 1000 employees (Tehran Stock Exchange, 2013). The pharmaceutical market in Iran is increasingly growing, and is experiencing double-digit growth (more than 10%) (Cheraghali, 2010).

Resource limitation (e.g., human, time, managerial, financial and capabilities) is a common problem for SMEs, mostly related to their smallness (Filippini et al., 2010; Muscio, 2007). This problem can encompass their growth and development, particularly in developing countries,

where SMEs also suffer from various problems associated with the nature of the context. In this regard, SMEs in Iran are faced with additional barriers such as market, financial, information, legal and inappropriate government interventions (UNIDO, 2003). Due to some limitations, foreign direct investment (FDI) in Iran is a problematic issue for overseas companies. Given these challenges, many pharmaceutical companies are looking for their rapid growth through involvement with international businesses. In this regard, licensing has been an outstanding tool for foreign firms wishing to enter Iran's local market. Consequently, for local firms, licensing alliances have been a significant opportunity and bridge to achieve various business objectives, e.g. obtaining the latest molecules or attaining the latest technologies as well as learning. However, sustainable attendance in domestic and international markets requires critical and strategic resources in SMEs. Therefore, finding appropriate solutions to overcome resource limitations is one of the main research objectives in studying these kinds of businesses. In this respect, this study attempts to find proper answers to the research problem based on a resource-based view (RBV).

According to resource-based view (RBV) in the field of strategic management, the firm is a bundle of resources and capabilities (Barney, 1991). Distinctive capabilities and resources can lead to competitive advantage over competitors (Peteraf, 1993). Similarly, based on capabilities literature and the dynamic capability view (DCV), there are two kinds of capabilities in a firm: operational and dynamic. Operational capabilities make profitability for the company, whereas dynamic capabilities govern the rate of change for operational capabilities to address changes in the firm's environment. Therefore, dynamic capabilities play a fundamental role in organizations (Ambrosini and Bowman, 2009).

On this basis, capability development in the company is one of the main concerns of strategic management researchers and managers of the companies (Teece et al., 1997). Capabilities in a company can be developed or enhanced through two general ways: first, by the genesis of capabilities with focus on the firm's internal resources; and second, by emphasizing external factors such as inter-organizational relations (Grant, 1996). In other words, development of capabilities can be in-house or based on a firm's external relationships (Gadde et al., 2010). It is important to note that in this study, the terms *capability development*, *capability enhancement* and *capability improvement* are used interchangeably.

Many studies have been conducted on capabilities development based on the internal resources of an organization (Helfat, 2000). However, emphasizing capability development merely based on internal resources of the firm (an in-house approach) is challengeable from a practical perspective because a firm's internal resources are limited, especially in SMEs, due to their liability of smallness or limited equity base. For this reason, researchers criticize the in-house approach, and believe that no company can create or enhance all of its required capabilities for achievement solely in an isolated environment. Instead, there are other opportunities, such as inter-organizational cooperation for learning and developing capabilities based on the available resources of the firm, which can be acquired by companies (Powell et al., 1996). For example, acquiring capabilities through inter-organizational exchange such as mergers, acquisition and alliances can be considered an effective approach to enhance and develop the firm's capabilities, whether for large-scale enterprises (LSEs) or SMEs (Grant, 2010, 1996; Reuer et al., 2006). In this study, those firms with more than 500 employees are considered as large-scale enterprises (LSEs).

Obviously, new conditions of the global economy are changing toward more global expansion, including development of products and services and their sales in global markets (Hollensen, 2011). This evolution has also changed the competition paradigm, and as an effective force leads different businesses to create more interaction with global markets throughout the world (Todd and Javalgi, 2007). Hence, to survive and overcome the globalization challenges as well as learn and develop firms' capabilities, involvement in international businesses is an inevitable interaction. The earlier studies show that companies are involved in international businesses through two distinctive orientations, namely outward and inward (Welch and Luostarinen, 1993).

In the international marketing literature, involvement in international markets is called internationalization (Fletcher, 2001). Strategic alliances are appropriate tools both for the inward and outward internationalization of firms (Kim, 2004; Sanchez and Heene, 2010). They are considered as effective vehicles for SMEs "to access, discover or exploit opportunities" (Reuer et al., 2011, p. 13). Strategic alliances are also appropriate tools for learning, particularly experimental learning and obtaining capabilities, competencies and skills which cannot be developed inside the company (Inkpen and Tsang, 2007; Tsang, 1999, 2002). Following this perspective, study and research on strategic alliances will be significant.

Alliances are classified into two main groups, equity and non-equity alliances, as popular moods in the internationalization context. For example, the joint venture is the most common form of equity alliance, while licensing is the most common type of non-equity alliance. On this basis, equity alliances have been regarded as more effective tools for developing capabilities of partners (Anand and Khanna, 2000). Although it is widely accepted that equity alliances are more effective tools than non-equity alliances, their realization requires allocation of different resources, assets and managerial skills by partners. In other words, the formation of equity alliances requires sufficient resources along with the firm's ability to overcome its implementation challenge, something that is difficult for those SMEs faced with the liability of smallness (Reuer et al., 2011).

As previously noted, resource limitation is the most common problem for SMEs; therefore, non-equity alliances are used as useful alternatives to obtain and compensate complimentary assets. As the name (non-equity alliances) implies, they are preferred due to their reduced need for equity as well as their lower cost (Walter, 2012). In this regard, many small companies could search for ways of developing different capabilities while acquiring technology through licensing alliances with large partner firms. In addition, it is used as an attractive way to reach rapid growth (Atuahene-Gima, 1993, 1992; Kollmer and Dowling, 2004).

In developing countries, companies have a high tendency to obtain required knowledge and technology through alliances with large international companies from developed countries (Cho and Lee, 2003). In this respect, inward international licensing (IIL) as a non-equity alliance plays a distinctive role in the involvement of companies in international business activities (Fletcher, 2001; Welch and Luostarinen, 1993). For example, companies use IIL as an effective tool to realize different goals in developing countries. For instance, grasping new products, capability development, technology enhancement, acquisition of new processes, reputation, learning, and saving costs and time have been regarded as the main objectives (Johnson, 2002; Moguee, 1991; Tanaka et al., 2007).

Furthermore, studies also show that in emerging economies, many companies have more emphasis on the two distinctive subjects of *learning by doing* or *learning by licensing* and *capability building* or *capability development* to enhance their position in competitive markets (Lichtenthaler and Muethel, 2012; Tsai and Wang, 2007; Wang et al., 2012a).

Examining the extant literature on licensing alliances reveals that a significant part of this literature is devoted to out-licensing, and that the majority of these studies have been performed in the context of developed countries rather than emerging economies (Wang and Zhou, 2013). In other words, the main focus of these investigations has been typically performed in a developed context, from the licensor perspective rather than licensee side. In addition, these studies have rarely evaluated the nature of licensing alliances. Although several studies have also been conducted from the licensee perspective regarding licensing alliances, there are numerous uncovered aspects which require more effort to bring clarity concerning the subjects. This necessity becomes more serious when licensing alliances are linked with SMEs in emerging economies.

Non-equity alliances have been considered as suitable opportunities to develop a firm's capabilities. In line with this reality, for example, several studies (Das and Teng, 2000; Madhok, 1997; Mowery et al., 1996; Tsang, 1998) show that scholars have conducted extensive research on the effect of equity alliances on the development and enhancement of different capabilities of the companies. However, when it comes to non-equity alliances, few studies have been conducted to examine the effect of contractual alliances such as IIL on firms' capability enhancement or development (Wang and Zhou, 2013), particularly in SMEs as licensees (ref). The shortage of these studies becomes more serious when the studied capabilities are of dynamic capabilities.

As was noted above, dynamic capabilities play a fundamental role in organizations (Helfat et al., 2007; Teece et al., 1997). Despite many studies on dynamic capabilities, there is no consensus among researchers on instances of dynamic capability. Therefore, different capabilities have been introduced by different researchers as instances of dynamic capabilities. Following this line of thought, according to Wang and Ahmed (2007), dynamic capabilities in each organization include innovative capability, adaptive capability and absorptive capability.

In this respect, various studies regard new product development as a dynamic capability. Furthermore, relational capability and networking capability have been considered as another two dynamic capabilities in the company by several scholars (Helfat et al., 2007; Mort and Weerawardena, 2006; Walter et al., 2006).

Some capabilities play more strategic role in the company. Two of these important and dynamic capabilities are absorptive capacity (ACAP) and networking capability (NC). ACAP plays a key role in the valuation, assimilation and application of generated knowledge externally (Cohen and Levinthal, 1990). Absorptive capacity is a multi-dimensional and firm-level construction which is a source of competitive advantage, performance, innovation and strategic flexibility in the company (Cohen and Levinthal, 1990; Zahra and George, 2002). Therefore, it is needless to say that if SMEs want to survive and overcome the dynamic environment, the presence of such effective capability (e.g. ACAP) can be regarded as a critical resource for them (Liao et al., 2003; Muscio, 2007). In addition, the existence of strong ACAP in the alliances' context allows the company to better and more easily obtain capabilities (Sanchez and Heene, 2010). Due to the importance of this capability, more than 10,000 papers and books have been published (from 1990 to 2010) when this concept was introduced by Cohen and Levinthal (1990), but this field still requires more research (Volberda et al., 2010).

One of the other, very important dynamic capabilities in a company is networking capability (NC). NC refers to the ability of a company to initiate relationships, develop relationships and terminate relationships with its business partners (Mitrega et al., 2012). In other words, NC in a company deals with the substantial strategic management of the company's assets, i.e. business relations. Since from the network perspective the major assets of a company are its business relationships, and since there is no company without business relationships, no company can act as an isolated island (Snehota and Håkansson, 1995).

The existing literature on business networks suggests that different resources, such as knowledge, information, capabilities, technology, skills, social capital and learning opportunities, are accessible in a business networks context (Ahuja, 2000; Dyer and Singh, 1998; Gulati, 1998; Powell et al., 1996; Provan et al., 2007; Uzzi, 1997). Given the importance of the business network, the internal capability which allows companies to extract more value and benefit from embedded resources in the business network is NC (Mitrega et al., 2012; Mu and Benedetto, 2012; Walter et al., 2006). Particularly for SMEs, which face a resource limitation crisis, networking capability compensates for different resources (Mort and Weerawardena, 2006; Wales et al., 2013). For example, a cursory look at the network literature associated with SMEs also reveals that those SMEs which have created better and stronger positioning in business

networks have experienced faster and more successful internationalization (Coviello and McAuley, 1999).

Accordingly, enhancement of NC for SMEs can be a strategic issue. To enhance this capability, inter-organizational collaboration through alliances with LSEs would be a suitable opportunity for SMEs.

Considering the above argument and facts, there are *general* and *special* reasons to investigate the likely impacts of IIL as a non-equity alliance on the two dynamic capabilities of ACAP and NC in a developing economy context. It is essential to note that the author's many years of experience in SMEs' management also confirms the importance of these two capabilities for SMEs. These reasons are considered in turn as follows.

1.2 The general reasons to perform this study

First, while a growing body of research highlights the impact of equity strategic alliances on different capabilities of the company (Das and Teng, 2000; Madhok, 1997; Mowery et al., 1996; Tsang, 1998), comparatively little consideration has been given to the possible impact of non-equity strategic alliances on the development of these capabilities. For example, many researchers have mentioned that inward licensing has an effective impact on the capabilities of the company, but they have rarely explained the effect of IIL on the capabilities of a firm, and why this alliance may cause a change in a specified capability.

Second, the studies have been for the most part conducted on contractual alliances from the out-licensing viewpoint, rather than the in-licensing perspective (Laursen et al., 2010).

Third, the conventional literature on licensing suggests that the studies have been primarily performed in a developed economy context, and not developing economies.

Fourth, despite the importance of SMEs in the world's economy, studies have been conducted mainly on strategic alliances in large enterprises rather than in SMEs.

1.3 The special reasons to study the impact of IIL on ACAP in SMEs

First, absorptive capacity in SMEs is an area which has not been studied sufficiently (Flatten et al., 2011b). Second, there is a lack of studies on the impact of IIL on the development or enhancement of SMEs' absorptive capacity in a developing economies context (Tsai and Wang,

2007). Third, many studies have been conducted on the importance and role of absorptive capacity in alliances' success (Lane and Lubatkin, 1998; Lane et al., 2006), but the impact of alliances (such as IIL) on absorptive capacity enhancement has been less explored (Atuahene-Gima, 1992; Kim, 1998; Wang et al., 2012b).

Fourth, few studies have been conducted on absorptive capacity by assessing its sub-components along with the associated antecedents (Volberda et al., 2010). Thus, there is little knowledge about the impact of IIL on SMEs' absorptive capacity as a critical dynamic capability. In other words, this issue indicates a potential research gap.

1.4 The special reasons to study the impact of IIL on NC in SMEs

Like absorptive capacity, examining the extant literature in this field shows that researchers have rarely studied the impact of contractual alliances such as IIL on networking capability (NC) in SMEs empirically, while some studies refer to the fact that in developing countries, when companies try to obtain advanced technologies from large-scale enterprises (located in developed countries), their NC might be developed (Cho and Lee, 2003). Therefore, closing this gap can be considered as the goal of a study.

1.5 Research purpose

Given the above argument and general and special reasons, from the licensee perspective in a developing context, little is known about the possible impacts of inward international licensing (IIL) on SMEs' absorptive capacity (ACAP) and networking capability (NC) as the two crucial dynamic capabilities. Consequently, to shed light on these issues and close the research gaps, the following research purpose is developed:

The purpose of this study is to examine and explore the major impacts of inward international licensing (IIL) on dynamic capabilities of SMEs, with focus on absorptive capacity (ACAP) and networking capability (NC) in a developing economy context.

1.6 Research questions

As the general purpose of this study shows, its focus is on two dynamic capabilities, i.e. absorptive capacity (ACAP) and networking capability (NC). On this basis, to address the purpose of this study, two research questions can be formulated and answered.

Research question one (RQ1): *How can the impacts of inward international licensing (IIL) on the absorptive capacity (ACAP) of SMEs in a developing context be explained?*

Research question two (RQ2): *How can the impacts of inward international licensing (IIL) on the networking capability of SMEs in a developing context be explained?*

1.7 Outline of the study

The remainder of this thesis is set out as follows:

Chapter 2 - Frame of reference. The literature relevant to the study is presented, beginning with inward international licensing (IIL), followed by absorptive capacity (ACAP) and networking capability (NC) as the two main dynamic capabilities (DCs).

Chapter 3 - Research methodology. It consists of a philosophical worldview, the type of research, the research strategy, data collection and associated tools, research quality and a research map.

Chapter 4 - Presentation of data (case studies). Presents the results of data collected from the research field.

Chapter 5 - Data analysis. Deals with the analysis of collected data and discussion based on the theoretical frameworks associated with IIL, NC, ACAP in order to find the answers to the research questions.

Chapter 6 - Conclusion and recommendation. Demonstrates the research results and their contributions, along with the research limitations, theoretical and managerial implications, and provides recommendations for further research.

2 Frame of reference

In this chapter, those theories relevant to the study have been reviewed. First, the conventional literature on licensing is examined with focus on IIL, and then a proper framework is developed to identify and classify different kinds of licensing alliances. Moreover, in the context of RBV and DCV, the extant literature of capabilities is reviewed. Then, in order to develop a theoretical framework to assess ACAP and NC influenced by IIL, the chapter further examines the literature related to these two dynamic capabilities along, with their components and relevant sub-components.

2.1 Inward international licensing (IIL)

To examine the effect of IIL on SMEs' absorptive capacity and networking capability, it is essential to understand the nature of IIL and its background. Internationalization is the increasing involvement of the firm in international activities, whether inwardly or outwardly (Fletcher and Prashantham, 2011; Fletcher, 2001; Welch and Luostarinen, 1993).

There are different kinds of outward internationalization modes, such as indirect and direct exports, establishing foreign sales branches, licensing abroad, strategic alliances and foreign direct investment (FDI). On the other hand, firms are involved in international business through several activities such as indirect and direct imports, licensing in their home country, strategic alliances, cooperative manufacturing and purchasing (Fletcher, 2001).

As seen above, strategic alliances are common tools both in outward and inward internationalization. There is a diversity of collaborative forms of strategic alliances (Grant and Baden-Fuller, 2004) which can be classified into two major groups: equity and non-equity (contractual) alliances. Strategic investment, cross-shareholding and joint ventures are three forms of popular equity strategic alliances. On the other hand, co-marketing, R&D contracts, turnkey projects, strategic supplier/distributors, franchising and licensing are several forms of contractual strategic alliances (Hagedoorn, 2002; Inkpen, 1998; Tallman and Shenkar, 1994).

Among a variety of alliances, this study is focused on licensing as a sort of contractual strategic alliance. Licensing alliances are one of the more popular inter-firm agreements, particularly in the pharmaceutical, chemical and electronic industries, and form 20-30% of total alliances (Arora and Fosfuri, 2003).

In the field of non-equity alliances, various definitions of licensing are found. According to a definition provided by Atuahene-Gima (1993, p. 157), licensing is defined as “*a contractual arrangement whereby one firm (the licensor) sells the rights to the use of the technology, in the form of products, processes, patents, trademarks, marketing and technical know-how, to another firm (the licensee)*”. Based on this definition, licensing can be considered as a package of technology along with different components. This fact has been reported by several authors in previous studies. For instance, Welch (1985) pointed out that licensing is a package including a technical core and commercial know-how. The technical core itself includes know-how and a patent (s), whereas commercial know-how refers to a bundle of marketing know-how, managerial know-how, trademarks and design.

Based on the extant literature, licensing itself is regarded as having different forms as well as being labeled by several names. Some various forms of licensing are provided as follows: outward licensing (out-license), inward licensing (in-license) (Arora and Fosfuri, 2003; Lichtenthaler, 2011), inward technology licensing (Atuahene-Gima, 1993), technology in-licensing (Tsai and Wang, 2007; Wang et al., 2012a), inward international licensing, outward international licensing (Mogee, 1991), exclusive licensing, non-exclusive licensing (Anand and Khanna, 2000), standard licensing, embedded licensing (Hagedoorn et al., 2009), and cross-licensing (Somaya, 2003). To follow the purpose of this study, it is necessary to find appropriate positioning among these various forms of licensing.

In this regard, based on the reviewed literature, the author of this thesis identified various forms of licensing, and then classified them into three main groups (types): exclusive vs. non-exclusive licensing (Type 1); standard vs. embedded licensing (Type 2); and outward (out-license) vs. inward (in-license) licensing (Type 3). These three licensing groups, along with their characteristics, are presented in **Table 1**. In addition, the nature of the threefold groups of licensing are discussed as follows.

Table 1: Different forms of licensing along with associated characteristics.

Type	Characteristics	Author (s)
Exclusive licensing	–Licensor works with only one licensee	Anand and Khanna (2000); Kim and Vonortas (2006); Somaya, Kim, and Vonortas (2011)
	–Restricted to specific products or geographic area	
	–A significant source of complementary capabilities	
Non-Exclusive licensing	–A drastic innovation opportunity for licensee	
	–Licensor provides its license without any restriction	
Standard licensing	–Often used for technology licensing contracts	Jiang and Menguc (2012); Hagedoorn et al.(2009)
	–Licensor grants the rights of technology use only to the licensee	
Embedded licensing	–Collaboration between licensor and licensee is an economic-based transaction	Atuahene-Gima (1992); Hagedoorn and Duysters (2002); Tsai and Wang (2007); Somaya, Kim, and Vonortas (2011); Arora and Fosfuri (2003); Lichtenthaler (2011) : Aulakh et al. (2009)
	–Licensee obtains the rights to utilize both technology and brand name	
	–Licensee finds more access to diversified and critical resources	
Outward licensing	–Collaboration between licensor and licensee is very close (relatively similar to an equity alliance)	Johnson (2002); Kotabe et al. (1996); Lowe and Crawford (1983); Walter (2012); Lichtenthaler and Muethel (2012); Wang et al.(2012b); George (2005); Malik (2011); Wang and Zhou (2013); Kollmer and Dowling (2004)
	–Refers to the supply-side partner (licensor), which sells the rights for technology use to the buyer side (licensee)	
	–A strategic market entry mode to penetrate foreign markets and access market knowledge (an exploratory market entry tool)	
Inward licensing	–As an alternative for foreign direct investment (FDI)	
	–Refers to the demand-side partner, which buys the rights for technology use from the seller or licensor	
	–A learning opportunity and rapid growth strategy	
	–A tool to obtain advanced external technology and know-how	
	–A new product development and innovation strategy	
	–A device to develop a firm’s capabilities	
	–An opportunity to access complementary assets, decrease time to market, and avoid development risks, and a tool to save cost and time	
–An instrument to develop inter-firm networks and partner relationships and a policy to acquire reputation		
–A feasible way for SMEs to compensate resources and asset limitations		
–A way for absorptive capacity improvement and a mechanism to access new knowledge		
–A common tool in inward internationalization		

2.1.1 Exclusive vs. non-exclusive licensing (Type 1)

Exclusive licensing refers to a type of licensing by which the licensor works with only one licensee and is restricted to specific products or a certain geographic area; this kind of licensing can be often a significant source of complementary capabilities and drastic innovation for

licensees, whereas nonexclusive licensing does not have any restriction and is often used for technology licensing contracts (Anand and Khanna, 2000; Kim and Vonortas, 2006).

2.1.2 Standard vs. embedded licensing (Type 2)

In the standard form of licensing, the licensor grants the rights of technology use only to the licensee, whereas in embedded licensing, the licensee obtains the rights to utilize both technology and the brand name of the licensor (Jiang and Menguc, 2012). Needless to say, in embedded licensing, the brand is embedded within licensed products.

The nature of the licensor-licensee relationship in these two kinds of licensing will be fundamentally different. For instance, in embedded licensing, the licensee finds more access to diversified and critical resources. Likewise, collaboration between the licensor and licensee is very close and trust-based, as well as it is relatively similar to an equity alliance such as a joint venture (Jiang and Menguc, 2012).

2.1.3 Outward (out-license) vs. inward (in-license) licensing (Type 3)

Outward licensing refers to the supply-side partner (licensor), which sells the rights of technology use to the buyer side (licensee), while inward licensing refers to the demand-side partner, which buys the rights of technology use from the seller or licensor. In outward and inward licensing, the form of technology can be products, processes, patents, trademarks, marketing and technical know-how (Atuahene-Gima, 1992; Hagedoorn and Duysters, 2002; Tsai and Wang, 2007).

Obviously, in the context of internationalization, these two kinds of licensing are labeled as outward international licensing (OIL) and inward international licensing (IIL), which are respectively approached by the licensor and licensee in different countries (Mogee, 1991). In an internationalization context, outward international licensing (OIL) is mostly used as an effective and strategic entry mode to international markets by different kinds of firms, especially in those markets which have tariff or tax barriers for export and foreign direct investment (Álvarez et al., 2002). In addition, out-licensing is a commercialization tool to achieve a competitive position in the market (Lichtenthaler and Ernst, 2012). In contrast, inward international licensing (IIL) is a

common tool for inward internationalization, and is used as an effective strategy by many firms for involvement in international markets (Fletcher, 2001).

Based on the above classification (licensing typology), a researcher can find a framework which will make it easy for him or her to find proper positioning among different forms of licensing alliances. In other words, given the suggested licensing typology, a variety of combinations of licensing can be concluded (e.g., inward exclusive standard licensing, outward exclusive standard licensing). Taken together, and for the sake of simplicity, these three types of licensing can be shown in a model. In this respect, **Figure 1** provides a visualized framework of licensing typology based on the explanations above.

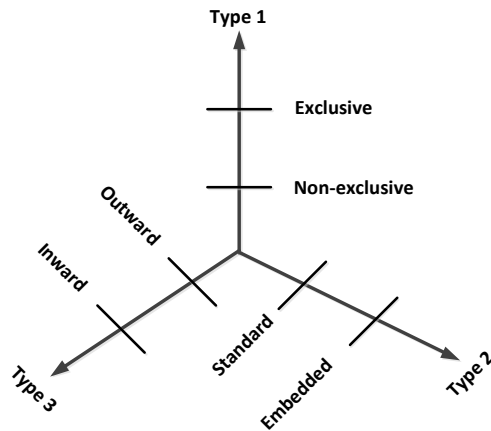


Figure 1: Different types of licensing (licensing typology).

As the focus of this study is on IIL, a clear definition should be presented. Hence, building on several definitions (Atuahene-Gima, 1993; Hagedoorn and Hesen, 2007; Moguee, 1991; Wang et al., 2012b) and for the purpose of this study, international inward licensing (IIL) is defined as “an exclusive contractual agreement and relationship between a foreign licensor and host licensee, by which the licensee is granted access to the licensor’s technology, know-how, knowledge or patent and brand name to manufacture and market a new product”.

Consequently, based on this definition and the suggested framework (see **Figure 1**), the type of licensing in this study is determined as *inward international licensing (IIL)*, which can be described as:

- Inward;
- Exclusive;
- Embedded; and
- International-oriented.

2.2 Resource-Based View and Dynamic Capabilities View (DCV)

In the previous section, a typology of licensing was provided based on the reviewed literature. In this section, the resource-based view (RBV) and dynamic capabilities view (DCV) are described as the theoretical basis of this study.

The resource-based view (RBV) in the field of strategic management is a perspective that helps to understand the firm's competitive advantage and its sustainability over time (Barney, 2001, 1991). The RBV focuses on the inside properties of the firm. According to this perspective, the firm is considered as a bundle of resources and capabilities. Distinctive capabilities and resources, in turn, can lead to competitive advantage over competitors (Peteraf, 1993).

If the firm's resources and capabilities have the four characteristics of value, rareness, imperfect imitability and imperfect sustainability, then they lead to the competitive advantage of that firm (Barney, 1991). The resources of the firm are divided into tangible and intangible assets: the tangible assets include the firm's land, buildings, materials, and money, while the intangible assets consist of the firm's competencies, knowledge, capabilities, attitudes, relationships and reputation (Wit and Meyer, 2010).

Building on recent RBV research (Ambrosini and Bowman, 2009; Ambrosini et al., 2009; Wang and Ahmed, 2007), the RBV includes two main dimensions: static and dynamic. The static dimension refers to those resource bases (e.g., operational capabilities) which influence the current activities and performance of the firm. In other words, the static dimension of the RBV makes the firm a living (Teece, 2007), whereas the dynamic dimension addresses environmental change and adaptation. Based on the RBV and capabilities literature, operational capabilities are associated with the static dimension of the RBV, while dynamic capabilities (DCs) are illustrative of the dynamic part (Ambrosini et al., 2009; Wang and Ahmed, 2007). As such, the DCV is extended from the RBV (Barreto, 2009). Accordingly, it is clear that DCs play a

fundamental role in organizations because they govern the rate of change for operational capabilities (Teece, 2007; Teece et al., 1997). Following this line of thought, a growing body of research highlights the importance of DCs (Adner and Helfat, 2003; Ambrosini et al., 2009; Eisenhardt and Martin, 2000; Winter, 2003; Zahra, 2006; Zollo and Winter, 2002; Zott, 2002).

Through DCs, the firm finds the potential ability to change, adapt, integrate and reconfigure resources and operational capabilities (Cepeda and Vera, 2007; Zahra, 2006). In other words, dynamic capability is the ability of the firm to change the static dimension of the firm's resource basis. However, some dynamic capabilities can be developed by other dynamic capabilities; in this case, those dynamic capabilities which are able to develop DCs are called meta-dynamic capabilities (Ambrosini et al., 2009; Collis, 1994).

DCs can take a variety of forms in a firm, such as R&D, new product development capabilities, alliances management, acquisition and relational capabilities (Helfat et al., 2007). However, Wang and Ahmed (2007) suggested absorptive capacity (ACAP), adaptive capability and innovative capability as the main DCs of the firm. Other studies have attempted to explain the firms' networking capability as a critical dynamic capability (Helfat et al., 2007; Mitrega et al., 2012; Mort and Weerawardena, 2006; Walter et al., 2006), particularly for SMEs facing resource limitation problems.

Following this perspective, in this study the author of this thesis considers *absorptive capacity* and *networking capability* as the two crucial DCs of the firm which might be influenced by IIL.

2.3 Inward international licensing (IIL) and its possible impacts on a firm's capabilities

In a firm, capabilities could be developed by alliances (Grant, 2010). Alliances as vehicles of inter-firm collaboration provide opportunities for SMEs to obtain complementary capabilities and critical resources (Arend, 2006). Therefore, for a partner an alliance is not only a commercial tool, but also a mechanism to acquire a partner's skills and capabilities (Hamel, 1991).

Inward licensing as a contractual alliance is a common interaction tool for SMEs to access new technology and know-how, learning opportunity, new product development, and capability development (Kotabe et al., 1996; Lowe and Crawford, 1983; Ritter et al., 2002; Walter, 2012). Consistent with this line of thinking, Atuahene-Gima (1992) points out that inward licensing is an effective tool to overcome internal resource limitations.

As noted previously, IIL is also a popular strategy by which firms are inwardly involved in international business activities in developing countries. In this regard, there are various motivations behind of this type of internationalization (as shown in Table 1). *Learning by doing* or *learning by licensing* and *capability building* or *capability development* are the two most important issues, which are followed by firms in emerging economies to strengthen and develop their position in the competitive market (Tanaka et al., 2007; Tsai and Wang, 2007; Wang and Zhou, 2013). Following this line of thought, many researchers have noted that small firms often exploit licensing alliances with large partner firms to transfer technology and develop their capabilities (Atuahene-Gima, 1993, 1992; Kollmer and Dowling, 2004; Lowe and Crawford, 1983). Despite these important motives and the role of licensing in the firm's capabilities development, little is known about *learning-by-licensing* in licensees (Wang and Zhou, 2013).

A closer look at the literature reveals how scholars have examined the effects of acquisition, equity strategic alliances and outward licensing on the firm's different capabilities (Das and Teng, 2000; Madhok, 1997; Mowery et al., 1996; Tsang, 1998). Unlike equity strategic alliances, few studies have been carried out in the emerging economies context to understand firms' capability development by IIL. For instance, as noted previously, many researchers have stated that inward licensing has significant effects on the firm's capabilities (Tanaka et al., 2007; Tsai and Wang, 2007; Wang and Zhou, 2013). However, they have rarely explained which aspects or components of a given capability will be more influenced, and why and how they are influenced.

Furthermore, this challenge will be greater when a researcher is looking for the likely evolution of dynamic capabilities in SMEs which are involved in a contractual alliance such as IIL. For instance, previous research remains silent about the major impacts of IIL on the SMEs' two critical dynamic capabilities of absorptive capacity and networking capability in a developing context.

Therefore, as was also noted in Chapter 1, this lack of research is a suitable point of departure to explore the likely effect of IIL on SMEs' dynamic capabilities. Needless to say, it is beyond the scope of this study to examine all types of dynamic capabilities. In the next sections, the relevant theories of these capabilities will be discussed in depth.

2.4 Absorptive capacity (ACAP)

In the previous section, absorptive capacity was identified as a dynamic capability based on DCV. In the following section, in order to understand the nature of absorptive capacity, relevant literature is reviewed.

The concept of absorptive capacity (ACAP) as a firm-level learning process was developed by Cohen and Levinthal (1989) and expanded in their 1990 seminal article as the firm's ability to learn. Twenty years after publishing this article, a gigantic volume of literature has been allocated to ACAP as a multi-dimensional construct by scholars in different fields of organizational science (Lewin et al., 2010). ACAP is mainly rooted in the organizational learning discipline (Sun and Anderson, 2008); however, it has an overlap with several other disciplines like innovation, managerial cognition, knowledge-based view of the firm, and coevolution theories that are linked to the concept of ACAP (Volberda et al., 2010).

Absorptive capacity is a source of competitive advantage and plays a central role in a firm to develop competencies, capabilities, innovation and foster knowledge creation ability (Cohen and Levinthal, 1990). Furthermore, ACAP has a positive effect on strategic alliance success, and it would be an influential force to empower a firm's relational capabilities (Lane and Lubatkin, 1998), inter-organizational learning (Lane and Lubatkin, 1998; Lane et al., 2001) and intra-firm knowledge transfer (Szulanski, 1996). As noted previously, based on the dynamic capability view, many researchers have considered ACAP as a certain *dynamic capability* of the firm (Flatten et al., 2011b; Fosfuri and Tribo, 2008; Gebauer et al., 2012; Lewin et al., 2010; McAdam et al., 2009; Narasimhan et al., 2006; Wang and Ahmed, 2007; Zahra and George, 2002). In this regard, it is important to note that the terms *absorptive capacity* and *absorptive capability* are used as synonyms. On this basis, in this study absorptive capacity is considered as a dynamic capability. A firm with strong ACAP will be more flexible and innovative in the market through obtaining and applying external knowledge (Lane et al., 2006; Lichtenthaler, 2009; Todorova and Durisin, 2007; Zahra and George, 2002).

There are various definitions for ACAP. Based on Cohen and Levinthal's (1990, p. 137) original article, ACAP is defined as "*the firm's ability to value, assimilate, and apply new knowledge*". Valuation, assimilation and exploitation of new external knowledge are the three main highlighted dimensions of this process-based definition. Kim (1998, p. 507) defines ACAP as

“the capacity to learn and solve problems”. Zahra and George (2002) conceptualized ACAP in a new setup based on prior studies and added transformation, along with several drivers, as new dimensions to the model of Cohen and Levinthal (1990). In their new arrangement, ACAP was defined as *“a set of organizational routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organizational capability”* (p.186).

Many other researchers have attempted to enrich ACAP. For instance, Lane et al. (2006) used a critical review of 289 ACAP papers and tried to clarify the concept of ACAP. In their considerable paper, ACAP is defined as *“a firm’s ability to utilize external knowledge through the sequential processes of exploratory, transformative, and exploitative learning”* (p.856).

A closer look at the definitions above and several other major studies of ACAP (presented in Table 2) reveals that there is a relative consensus among ACAP researchers about the main building blocks of ACAP’s construct, which were determined by Cohen and Levinthal (1990) and elaborated on by others. These components are provided by different labels by the investigators, but inherently they have the same relative core meaning. For instance, Zahra and George (2002) added a new component to previous studies of ACAP and suggested acquisition, assimilation, transformation and exploitation as four sequential parts, where each stage completes the previous ACAP construct. They labeled the two first elements as potential absorptive capacity (PACAP) and the second two components as realized absorptive capacity (RACAP). Similar to Zahra and George, Minbaeva and Pedersen (2003), Jansen et al. (2005), Flatten et al. (2011a), Volbedra et al. (2010), and Hurmelinna-Laukkanen et al. (2012) have all defined the four same dimensions for ACAP.

Furthermore, in some models, ACAP’s process includes the three main components of explorative learning, formative learning and exploitative learning (Lane et al., 2006; Lichtentaler, 2009). This triad of ACAP components is close to the components given by Cohen and Levinthal’s (1990) model. Likewise, Van den Bosch et al. (1999) coined exploration and exploitation as new labels of the three components of Cohen and Levinthal’s (1990) definition. However, in many studies the construct of ACAP comprises four distinct but complementary components, namely acquisition, assimilation, transformation and exploitation capabilities (Gebauer et al., 2012). As Table 2 shows, the main difference between scholars is about the component of transformation, which was added by Zahra and George (2002). Accordingly, it is

not an exaggeration to say there is a relative convergence between scholars about the main building blocks of ACAP.

Unlike the main components of ACAP, there is not the same relative agreement among researchers about sub-components and drivers (antecedents) of the ACAP construct. Analogous studies show that each researcher has determined different sorts of sub-components for drivers and the main components of ACAP (Flatten et al., 2011a; Volberda et al., 2010). For example, Cohen and Levinthal (1990) have suggested several critical sub-components and drivers for ACAP such as prior related knowledge, R&D investment, direct involvement in manufacturing, technical training, intensity of efforts, communication structure (internal and external), the individual's skills, level of knowledge diversification, and cross-functional interfaces, but they make no attempt to differentiate between the various drivers and components of ACAP. In other words, they have not clarified which each suggested sub-component belongs to which driver and component of ACAP. Meanwhile, based on Cohen and Levinthal (1990), ACAP mostly relies on R&D activities, and these authors did not propose an empirical study to determine the impact of suggested factors on ACAP (Vega-jurado et al., 2008).

Consistent with this line of thought, Szulanski (1996) provided a mix of sub-components and drivers (see **Table 2**) to operationalize ACAP; however, in this case the author also offers no explanation for the clear connection between sub-components and associated components of the ACAP. For example, it is not easy to evaluate a firm's knowledge acquisition capability by this model. Rather, ACAP can be measured as a whole, not based on its components as separate parts.

Furthermore, in a more recent theoretical study, Lewin et al. (2010) focused on the internal and external routines of ACAP to explain the main micro-foundations of ACAP. Their study also does not determine which micro-foundation of ACAP exactly belongs to which kind of ACAP component, namely acquisition, assimilation, transformation and exploitation capabilities. In other words, there is no clear link between micro-foundations (as sub-components of ACAP) and the main components of ACAP, whereas they have claimed that their model is organized based on a previous study by Zahra and George (2002).

According to another part of the research (Flatten et al., 2011a), scholars have highlighted sub-components of each of the four components of ACAP, but this study fails to consider the

antecedents of ACAP. Hence, the study could be more valuable if authors had included the drivers of ACAP.

In addition, other scholars have also focused on ACAP's drivers (determinants) as significant influential elements which have considerable impact on ACAP's components (Volberda et al., 2010). This issue previously had been highlighted by Lane et al. (2006). They called researchers within the field of ACAP to find the links between drivers of ACAP's components at the firm level. Drivers include human resources (HRs) (Minbaeva and Pedersen, 2003), organizational structure (Van den Bosch et al., 1999), combination capabilities (Jansen et al., 2005), intra and inter-firm relations, knowledge characteristics (Lane et al., 2006; Volberda et al., 2010), and social interaction (Zahra and George, 2002).

Accordingly, this argument, along with several substantial relevant studies on ACAP organized in **Table 2**, show that all studies reviewed so far suffer from the fact that no single model (or study) exists which adequately address all the components and sub-components of ACAP and its drivers. In other words, most studies in the field of ACAP have only been focused on a limited part of its components and drivers, as well as their links to the ACAP.

Consequently, to examine the likely impact of IIL on ACAP, drawing a clear analytical framework for ACAP is vital - a framework that considers all components of ACAP and its drivers along with associated sub-components independently.

Table 2: Components, sub-components and drivers of ACAP extracted from the extant literature.

Author(s)	ACAP components	Sub-components / drivers of ACAP	Outcome/effect
Cohen and Levinthal (1990)	<ul style="list-style-type: none"> – Valuing – Assimilation – Exploitation 	<ul style="list-style-type: none"> ▪ Prior related knowledge ▪ R&D investment ▪ Direct involvement in manufacturing ▪ Technical training ▪ Intensity of effort ▪ Communication systems and structure ▪ Individuals' skills ▪ Level of knowledge diversification ▪ Cross-function interfaces ▪ individual cognitions ▪ A common language related to knowledge ▪ A clear vision to transfer knowledge ▪ A clear division of roles and responsibilities ▪ The necessary skills ▪ The technical competence to absorb external knowledge ▪ The managerial competence to absorb external knowledge ▪ Exploiting new information ▪ Solving problems associated with obtained knowledge 	<ul style="list-style-type: none"> – Innovative capability – Innovative performance
Szulanski (1996)	<ul style="list-style-type: none"> – Valuing – Assimilation – Exploitation 	<ul style="list-style-type: none"> – Exploration : ▪ Scope and flexibility of knowledge absorption – Exploitation: <ul style="list-style-type: none"> ▪ Efficiency of knowledge absorption <p><i>Drivers:</i></p> <ul style="list-style-type: none"> ▪ Level of prior related knowledge ▪ Organizational determinants: <ul style="list-style-type: none"> • Form of organizational structure (function, divisional, matrix) ▪ Combinative capabilities: <ul style="list-style-type: none"> • Systems capabilities • Coordination capabilities • Socialization capabilities 	<ul style="list-style-type: none"> – Knowledge transfer
Van den Bosch et al. (1999)	<ul style="list-style-type: none"> – Exploration – Exploitation 	<ul style="list-style-type: none"> – Expectation change – Environmental knowledge change – Changing competitive dynamics 	

Author(s)	ACAP components	Sub-components / drivers of ACAP	Outcome/effect
Zahra and George (2002)	<ul style="list-style-type: none"> – Potential absorptive capacity: <ul style="list-style-type: none"> ▪ Acquisition ▪ Assimilation – Realized absorptive capacity: <ul style="list-style-type: none"> ▪ Transformation ▪ Exploitation 	<ul style="list-style-type: none"> – Acquisition: <ul style="list-style-type: none"> ▪ Prior investments ▪ Intensity of connections ▪ Speed of learning ▪ Direction of knowledge – Assimilation: <ul style="list-style-type: none"> ▪ Understanding of external acquired knowledge – Transformation: <ul style="list-style-type: none"> ▪ Internalization ▪ Conversion, internal knowledge sharing ▪ Knowledge integration – Exploitation : <ul style="list-style-type: none"> ▪ Application and implementation of knowledge to commercial ends 	<ul style="list-style-type: none"> – Competitive advantage – Innovation – New capabilities development
Minbaeva and Pedersen (2003)	<ul style="list-style-type: none"> – Acquisition – Assimilation – Transformation – Exploitation 	<ul style="list-style-type: none"> – <i>Drivers:</i> <ul style="list-style-type: none"> – Employees’ ability: <ul style="list-style-type: none"> ▪ Training ▪ Competence – Performance appraisal <ul style="list-style-type: none"> ▪ Employees’ motivation: ▪ Merit-based promotion ▪ Performance-based compensation ▪ Internal communication – Social integration mechanisms – Activation triggers – Regimes of appropriability – Prior knowledge 	<ul style="list-style-type: none"> – Transfer of knowledge

Author(s)	ACAP components	Sub-components / drivers of ACAP	Outcome/effect
Jansen et al. (2005)	<ul style="list-style-type: none"> - Acquisition - Assimilation - Transformation - Exploitation 	<ul style="list-style-type: none"> - Acquisition: <ul style="list-style-type: none"> ▪ Internal interactions ▪ Visiting other branches ▪ Collect industry information (informal networks) ▪ Special meeting with business partners to acquire knowledge - Assimilation: <ul style="list-style-type: none"> ▪ Market evaluation and quickly analyzing the related changes ▪ Quickly understanding new opportunities - Transformation: <ul style="list-style-type: none"> ▪ Recording and storing newly acquired knowledge for future reference ▪ Quickly recognizing the usefulness of new external knowledge ▪ Knowledge sharing ▪ Grasping the opportunities of new external knowledge ▪ Flowing market trends - Exploitation: <ul style="list-style-type: none"> ▪ Doing activities clearly ▪ Presence of clear role and responsibilities ▪ The ability to exploit knowledge ▪ Presence of a common technical language - <i>Drivers</i>: <ul style="list-style-type: none"> ▪ Combinative capabilities ▪ Coordination capabilities' mechanisms: <ul style="list-style-type: none"> • Cross-functional interfaces • Participation in decision making • Job rotation ▪ Systems capabilities' mechanisms: <ul style="list-style-type: none"> • Formalization • Routinization ▪ Socialization capabilities' mechanisms: <ul style="list-style-type: none"> • Connectedness • Socialization tactics 	<ul style="list-style-type: none"> - Innovation - Business performance - Intra and inter-organizational transfer of knowledge

Author(s)	ACAP components	Sub-components / drivers of ACAP	Outcome/effect
Lane et al (2006)	<ul style="list-style-type: none"> – Exploratory learning – Formative learning – Exploitative learning 	<ul style="list-style-type: none"> – <i>Drivers</i>: <ul style="list-style-type: none"> ▪ Characteristics of internal and external knowledge (drive the depth and breadth of understanding) ▪ Characteristics of learning relationships (drive the ease of understanding) ▪ Characteristics of firm members' mental models (drive the creativity of recognition, assimilation and application) ▪ Characteristics of firm's structures and processes (drive the efficiency and effectiveness of assimilation and application) ▪ Firm strategies (drive the focus of recognition and understanding, of assimilation, and application) 	<ul style="list-style-type: none"> – Commercial outputs – Knowledge outputs – Firm performance
Todorova and Durisin (2007)	<ul style="list-style-type: none"> – Acquisition – Assimilation or transformation – Exploitation 	<ul style="list-style-type: none"> – <i>Drivers</i> <ul style="list-style-type: none"> ▪ Power relationships (inside and outside of the firm) ▪ Social integration mechanisms ▪ Activation triggers – Exploratory learning: <ul style="list-style-type: none"> ▪ <i>Recognize</i>: <ul style="list-style-type: none"> • Environmental scanning for new technologies • Observing technological trends • Observing external sources of the technology in detail • Collecting technological Information ▪ <i>Assimilate</i>: <ul style="list-style-type: none"> • Acquiring external technology • Connecting with special partners to acquire technologies • Transferring technologies based on opportunities – Formative learning: <ul style="list-style-type: none"> ▪ <i>Maintain</i>: <ul style="list-style-type: none"> • Knowledge maintained over time • Storing technological knowledge for the future • Communicating knowledge in the firm • Knowledge management 	<ul style="list-style-type: none"> – Competitive advantage – Flexibility – Innovation – Performance
Lichtenhaler (2009)	<ul style="list-style-type: none"> – Exploratory learning – Formative learning – Exploitative learning 	<ul style="list-style-type: none"> – Formative learning: <ul style="list-style-type: none"> ▪ <i>Maintain</i>: <ul style="list-style-type: none"> • Knowledge maintained over time • Storing technological knowledge for the future • Communicating knowledge in the firm • Knowledge management 	<ul style="list-style-type: none"> – Innovation – Performance

Author(s)	ACAP components	Sub-components / drivers of ACAP	Outcome/effect
Volberda et al. (2010)	<ul style="list-style-type: none"> - Acquisition - Assimilation - Transformation - Exploitation 	<ul style="list-style-type: none"> ▪ <i>Reactive:</i> <ul style="list-style-type: none"> • Relying on existing knowledge based on new opportunities • Reactivating existing knowledge for new uses • Analyzing market changes for technologies • Using existing knowledge to serve customers based on new opportunities - Exploitative learning <ul style="list-style-type: none"> ▪ <i>Transmute:</i> <ul style="list-style-type: none"> • Transferring knowledge to new products • Matching new technologies with new ideas • Sharing knowledge and experiences to develop new products ▪ <i>Apply:</i> <ul style="list-style-type: none"> • Applying new technology/ in new products • Exploiting technologies better • Implementing technologies in new products - <i>Drivers:</i> <ul style="list-style-type: none"> ▪ Managerial antecedents : <ul style="list-style-type: none"> • Combinative capabilities • Management cognition • Dominant logic • Individual knowledge development • Sharing ▪ Intraorganizational antecedents: <ul style="list-style-type: none"> • Organizational form • Incentive structures • Informal networks • Internal communication ▪ Interorganizational antecedents: <ul style="list-style-type: none"> • Knowledge creation and sharing • Alliance management systems 	<ul style="list-style-type: none"> - Competitive advantage - Innovation and R&D - Exploitation/exploration - Firm performance

Author(s)	ACAP components	Sub-components / drivers of ACAP	Outcome/effect
Lewin et al. (2010)	ACAP capabilities : – Configuration of internal and external routines – Complementarities	<ul style="list-style-type: none"> • Dyad and network knowledge development and transfer • Relatedness of organization ▪ Prior related knowledge: <ul style="list-style-type: none"> • Depth of knowledge • Breadth of knowledge • Retrieval of knowledge • Short-term vs. long-term ▪ Environmental conditions: <ul style="list-style-type: none"> • Competitiveness • Dynamism • Appropriability regime • Knowledge characteristics <p>– Internal ACAP routines:</p> <ul style="list-style-type: none"> ▪ Facilitating variation (enabling the emergence of new ideas, e.g. brainstorming) ▪ Internal selection regimes ▪ Sharing knowledge and superior practices across the organization ▪ Reflection, updating, and replication ▪ Managing adaptive tension <p>– External ACAP routines:</p> <ul style="list-style-type: none"> ▪ Identifying and recognizing value of externally generated knowledge ▪ Learning from and with partners, suppliers, customers, competitors, and consultants ▪ Transferring knowledge back to the organization <p>– <i>Drivers</i>:</p> <ul style="list-style-type: none"> ▪ Organization structure ▪ Past experience ▪ Key people ▪ Incentive and reward structure ▪ Environment 	– Innovative performance

Author(s)	ACAP components	Sub-components / drivers of ACAP	Outcome/effect
Flatten et al. (2011a)	<ul style="list-style-type: none"> – Acquisition – Assimilation – Transformation – Exploitation 	<ul style="list-style-type: none"> – Acquisition: <ul style="list-style-type: none"> ▪ Search for relevant information ▪ Management motivation and expectation to use external information and knowledge – Assimilation: <ul style="list-style-type: none"> ▪ Communication structure <ul style="list-style-type: none"> • Cross-departmental communication for ideas and problem solving • Cross-departmental meetings to interchange new development and information flow) – Transformation: <ul style="list-style-type: none"> ▪ Organizing and using collected knowledge ▪ Preparing assimilated knowledge for future purposes and making it available ▪ Combining collected knowledge ▪ Linking existing knowledge with new insights ▪ Applying new knowledge in practice – Exploitation (commercial exploitation of new knowledge): <ul style="list-style-type: none"> ▪ Managerial support to develop prototypes ▪ Management support to reconsider technologies and adapt to new knowledge 	<ul style="list-style-type: none"> – Competitive advantage – Innovative capability – Flexibility – Superior performance
	<ul style="list-style-type: none"> – Acquisition – Assimilation – Transformation – Exploitation 	<ul style="list-style-type: none"> ▪ Work effectively with new technology ▪ Investment in acquiring new information ▪ Identifying and acquiring needed information at the right time ▪ Ability to increase information sources ▪ Learning new things effortlessly ▪ Interpreting the acquired information ▪ Connecting new and existing information ▪ Combining obtained information ▪ Utilizing current and new capabilities ▪ Utilizing new information in operations 	<ul style="list-style-type: none"> – innovation performance – alliance success
Hurnelima-Laukkanen et al., (2012)			

Based on the above arguments and the results of the reviewed literature presented in **Table 2**, in this study ACAP is defined as “*a firm’s ability to acquire, assimilate, transform and exploit the external knowledge to develop new capabilities*”.

In this definition:

- *Acquisition* is defined as a firm’s ability to search, identify, collect and acquire useful external knowledge.
- *Assimilation* is defined as the firm’s ability to understand, analyse, and interpret acquired external knowledge.
- *Transformation* is referred to the firm’s ability to record, organize, storage, and maintain assimilated external knowledge along with a new combination of existing and acquired knowledge.
- *Exploitation* is defined as the firm’s ability to exploit transformed knowledge to develop capabilities, new products, and processes for a commercial end.

In this study, acquisition, assimilation, transformation and exploitation include several independent sub-components. These sub-components were extracted and summarized from the major studies (see **Table 2**) related to ACAP. They have been presented in **Table 3**.

Table 3: Absorptive factors (AFs) and associated sub-components

ACAP dimensions	Component(s)	Sub-component(s)	References	
AFs	Acquisition	– Environment scanning and exploring for external knowledge opportunities	Cohen and Levinthal (1990); Lewin et al. (2010); Lichtenthaler (2009); Flatten et al. (2011a); Hurmelinna-Laukkanen et al. (2012); Zahra and George (2002); Jansen et al. (2005); Gebauer et al., (2012)	
		– Identifying and recognizing value of external knowledge and related sources (e.g., probing, seminars, professional journals, market research)		
		– Collecting and acquiring identified external knowledge and transferring it back to the firm		
		– Sharing acquired knowledge within the company		
	Assimilation	– Understanding and interpreting external acquired knowledge (e.g., through cross-departmental communication and meetings)		Cohen and Levinthal (1990); Lichtenthaler (2009); Flatten et al. (2011a); Hurmelinna-Laukkanen et al. (2012); Zahra and George (2002); Jansen et al. (2005); Gebauer et al., (2012)
		– Sharing interpreted external knowledge		
	Transformation	– Recording, organizing, storing and maintaining newly assimilated knowledge for future reference		Lewin et al. (2010); Lichtenthaler (2009); Flatten et al. (2011a); Hurmelinna-Laukkanen et al. (2012); Zahra and George (2002); Jansen et al. (2005); Gebauer et al., (2012)
		– Codification of knowledge and experience		
		– Referring to the recorded and stored knowledge at the right time for new opportunities		
		– Combining assimilated knowledge with existing knowledge		
		– Applying new knowledge in practice		
		– Knowledge communication and internal knowledge sharing		
Exploitation	– Knowledge conversion, internalization, and integration	Cohen and Levinthal (1990); Lewin et al. (2010); Lichtenthaler (2009); Flatten et al. (2011a); Hurmelinna-Laukkanen et al. (2012); Zahra and George (2002); Jansen et al. (2005); Gebauer et al., (2012)		
	– Transferring knowledge to new products and processes			
	– Existing product and process improvement based on transformed knowledge			
	– Knowledge and experience sharing to develop new products			
	– Matching and applying new technologies with new ideas and new products			
	– Working effectively with new technology			
	– Exploiting current and new capabilities			

As was pointed out previously, one of the main problems of the prior studies within the field of ACAP is that they fail to take into account the antecedents (drivers) of ACAP. This weakness becomes even more serious when it comes to the sub-components of ACAP's drivers. In this respect, based on the reviewed literature (**Table 2**), six antecedents were identified for ACAP. These drivers are internal knowledge, human resources (HR), intra-firm relationships, inter-firm relationships, managerial and strategic aspects, and environmental conditions. In addition, several sub-components were identified for each antecedent. These drivers and their sub-components are explained as follows, and shown in more detail in **Table 4**.

1. *Human resources (HR)*: refer to the firm's people competences, skills, experiences, training, mental models, education, and training as well as their motives and reward system.
2. *Internal knowledge*: refers to the firm's knowledge (e.g., technical, commercial) diversification, direction, scope, and breadth of the knowledge as well as the firm's prior knowledge and experiences. It is also includes the common language related to the knowledge within the company.
3. *Inter-firm relationships*: is defined as relationships with business partners (BPs) such as inter-organizational collaboration to acquire new knowledge, access to business networks to obtain new knowledge
4. *Intra-firm relationships*: defined as various aspects of the firm's internal communication and related social mechanisms such as its organizational form, communication systems and processes, connectedness, cross-functional communication, informal networks, information exchanging, knowledge sharing, and coordination mechanisms.
5. *Environmental condition*: refers to the characteristics of the knowledge environment such as competitiveness, dynamism appropriability regime and knowledge characteristics

Managerial and strategic aspects: defined as firm's managerial competencies, mental models and cognition power, along with their supportive strategy related to different areas that influence the firm's ability to use external knowledge (e.g., R&D investment strategy, facilitating knowledge sharing and internal communication).

Table 4: ACAP's dimensions- Contextual factors (CFs).

ACAP dimensions	Component(s)	Sub-component(s)	References
	Internal knowledge	<ul style="list-style-type: none"> -Prior knowledge and experiences (e.g. technical, commercial) -Level of knowledge diversification -Direction, scope, and breadth of knowledge -Common language related to knowledge 	<p>Cohen and Levinthal (1990); Zahra and George (2002); Van den Bosch et al. (1999); Todorova and Durisin (2007)</p>
	HRS	<ul style="list-style-type: none"> -Competence and skills (e.g., analytical, relational, cognition, technical and managerial) -Training and speed of learning (e.g., technical, social) as well as experiences -Motives and reward system (e.g., merit-based promotion, performance-based compensation, internal communication) -Mental models of HRS to recognize, assimilate and exploit external knowledge 	<p>Cohen and Levinthal (1990); Zahra and George (2002); Lane et al. (2006); Volberda et al.(2010); Lewin et al. (2010); Minbaeva and Pedersen (2003); Van den Bosch et al. (1999)</p>
	Intra-firm relationships	<ul style="list-style-type: none"> -Organizational form, communications systems and processes -Internal communication (e.g., connectedness, cross-functional communication, meetings, informal networks, information exchange, and other social mechanisms) -Knowledge sharing and superior practices across the organization -Facilitating variation (enabling the emergence of new ideas, e.g., brain storming, learning relationships) -Coordination capabilities' mechanisms (e.g., cross-functional relationships, participation in decision making and job rotation, routinization, clear roles and responsibilities) 	<p>Cohen and Levinthal (1990); Zahra and George (2002); Van den Bosch et al. (1999); Todorova and Durisin (2007); Volberda et al.(2010); Lewin et al. (2010); Lane et al. (2006); Jansen et al. (2005); Szulanski (1996)</p>
CFs			
	Inter-firm relationships	<ul style="list-style-type: none"> -Relationships with business partners (e.g., special meetings with suppliers, customers, and other partners to acquire knowledge) -Inter-organizational collaboration to acquire new knowledge -Access to business networks and knowledge resources to obtain new knowledge (e.g., personal networks, consultants, seminars, internet, database, professional journals, academic publications, market research, regulations) 	<p>Cohen and Levinthal (1990); Zahra and George (2002); Lane et al. (2006); WALTER et al. (2006)</p>
	Environmental condition	<ul style="list-style-type: none"> -Competitiveness and dynamism -Appropriability regime -Management motivation and support to use external information and knowledge 	<p>Zahra and George (2002); Todorova and Durisin (2007); Lewin et al. (2010); Lane et al. (2006)</p>
	Managerial and strategic aspects	<ul style="list-style-type: none"> -Combinative capabilities -Management mental models and cognition -Managerial competencies and individual knowledge -Supportive strategy and dominant logic (e.g., R&D investment, knowledge sharing, using external knowledge) 	<p>Flatten et al. (2011a); Van den Bosch et al. (1999); Volberda et al.(2010); Jansen et al. (2005)</p>

2.4.1 ACAP in the context of SMEs

As was noted above, the theory of ACAP was evaluated in a general sense, whereas the focus of this study is related to SMEs. On this basis, a question that naturally arises is whether the common theories of ACAP are applicable in the context of SMEs. Therefore, before synthesizing the analytical framework to analyze ACAP in SMEs, it is necessary to answer this question. To do this, there was a need to examine the extant literature on the ACAP of SMEs. In this regard, examining the relevant literature shows that in the context of SMEs, scholars have also used the same body of the literature on ACAP, which almost completely belongs to the large companies' context. For instance, Liao et al. (2003) and Muscio (2007), in their studies about ACAP in the context of SMEs, have used the original theories of Cohen and Levinthal (1994). In another study by Lee et al. (2012), the measurements of Szulanski (1996) were used to measure the ACAP of SMEs. Moreover, Flatten et al. (2011b) used the model of Zahra and George (2002) to evaluate the impact of strategic alliances on the absorptive capacity of SMEs. In line with this consideration, Filippini et al. (2010) pointed out that to evaluate the ACAP of SMEs, researchers have used the common models of ACAP applied for large companies. However, ACAP researchers believe that this concept has been paid less attention to in the context of SMEs, and that it needs more study (Filippini et al., 2010; Flatten et al., 2011b). From the outcome point of view, like large firms, SMEs with high ACAP will have more innovation ability and better flexibility to address environmental change (Liao et al., 2003).

Accordingly, thus far in the context of SMEs no new theories associated with ACAP have been used. However, these authors consider and highlight several crucial issues which are commonly rooted in the liabilities of smallness and newness when it comes to the SMEs' context. Likewise, there is a consensus among researchers of the SMEs' ACAP that liabilities of smallness are the main roots of some resource limitations and associated problems. In line with this understanding, to overcome problems related to the smallness the following issues are provided based on the extant literature examination.

- Because of the SMEs' resource limitations, they are less R&D- driven; therefore, establishing external relationships and collaboration with business partners (e.g., strategic alliances, business networking) will be vital to compensate for their weaknesses (Flatten et al., 2011b; Lee et al., 2012; Muscio, 2007; Thorpe et al., 2005).

- Learning-by-doing and learning-by-using are effective ways and alternative sources to develop ACAP in SMEs (Muscio, 2007).
- Because of SMEs' difficulties to invest in their R&D activities, skills, training, education and work experiences of employees in SMEs play the key role in enhancing ACAP (Flatten et al., 2011b; Muscio, 2007). In other words, ACAP in SMEs is more human resource-oriented, and learning through non-R&D activities as well as external interactions will be more effective ways to enhance ACAP (Hervas-Oliver et al., 2012).
- Strategic alliances with large companies can be an effective way to acquire unique resources, capabilities and develop SMEs' ACAP (Lee et al., 2012).

Overall, the above facts show that in the context of SMEs, ACAP is more based on skillful people and non-R&D activities, particularly those activities which are related to the external environment such as business networks, strategic alliances and other inter-organizational relationships.

2.4.2 Dimensions of ACAP in a new setting

Back to the ACAP theories which discussed above, so far, based on the extant literature, components and drivers of ACAP along with their sub-components were discussed and classified. Building on this, in the next stage, and for the purpose of this study, ACAP is framed in a new setting. In this new setting, dimensions of ACAP can be divided into two factors: absorptive and contextual.

Absorptive factors (AFs) refer to a set absorptive capacity components, namely acquisition, assimilation, transformation and exploitation capabilities. In other words, these are internal factors of the ACAP construct. The components and sub-components of AFs are shown in **Table 3**.

Contextual factors (CFs) refer to those drivers (antecedents) that influence absorptive factors (AFs). CFs includes human resources (HRs), inter and intra-firm relationships, strategic and managerial aspects, environment, and internal knowledge. These factors emphasise the external factors of the ACAP construct. The components and sub-components of CFs are shown in **Table 4**.

Given this new multidimensional setting of ACAP, it covers the problems and weaknesses of prior studies which were previously discussed. In order to examine the impacts of inward international licensing (IIL) on the firm’s absorptive capacity, the following theoretical framework is proposed (see **Figure 2**). All components of this framework have been explained through the last sections. This framework can be applied both for SMEs and LSEs to evaluate the dimensions of ACAP (although the focus of this study is about SMEs).

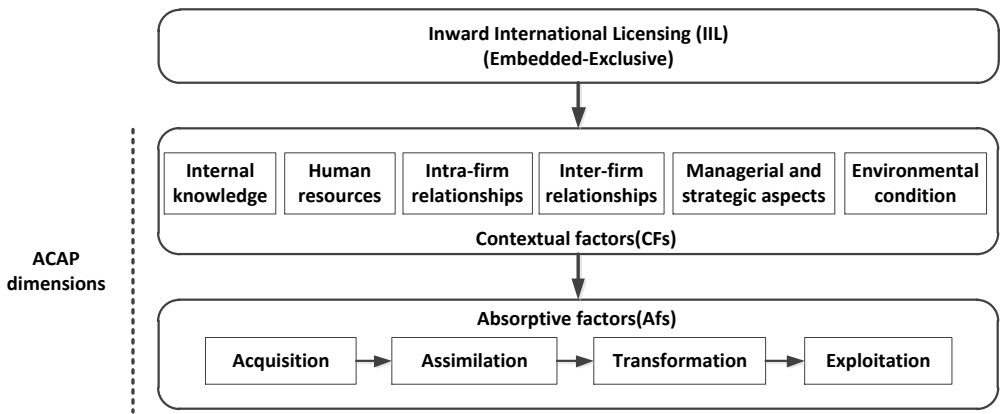


Figure 2: A model as a framework to examine the impact of the IIL on the firm’s ACAP dimensions.

2.5 Networking capability (NC)

A business network serves as the locus of different forms of resources and opportunities which can be available for network members. These resources include knowledge, information, technology, capabilities, skills, social capital, new partners, learning opportunity, etc. (Ahuja, 2000; Dyer and Singh, 1998; Gulati, 1998; Gulati et al., 2000; Nahapiet and Ghoshal, 1998; Powell et al., 1996; Provan et al., 2007; Reagans and McEvily, 2003; Uzzi, 1997).

Business relationships as the strategic assets of a firm (Johnson et al., 2004) are core components of a business network (Johanson and Vahlne, 2011; Snehota and Håkansson, 1995). Based on the relational view, effective business relationships can be a source of competitive advantage (Dyer and Singh, 1998). Potential opportunities and resources in the context of a business network can be identified and realized through firms’ business relationships. In this respect, in order to extract more value from a business network and create competitive advantage, it is crucial to have a critical related capability within the focal firm (Mu and Benedetto, 2012).

In the literature of inter-firm relationships, this specific capability is introduced by three interrelated terms: “*alliance capability*” (Kale and Singh, 2007; Kale et al., 2002), “*relational capability*” (Dyer and Singh, 1998) and “*networking capability*”(NC) (Mort and Weerawardena, 2006).

As the term *alliance capability* implies, it is specifically dedicated to the alliance function which is responsible for managing a firm’s alliance activities effectively (Kale et al., 2002; Rothaermel and Deeds, 2006). Similarly, when it comes to relational capability, it covers a functional domain to some extent. In other words, it does not consider and support all the main relationship stages as well as various types of a firm’s business partners (Mitrega et al., 2012). On this basis, this study is focused on the NC as a more comprehensive concept which has considered all types of the firm’s business relationships with all its main business partners, such as relationships with customers, suppliers, complementors and competitors in the context of the business network (Ritter et al., 2004).

NC in the literature has been presented by different terms and labels; these terms, however, are intrinsically synonyms (Äyväri and Möller, 2008). In this research, therefore, they are used interchangeably. For instance, NC has been conceptualized by several researchers as “*network competence*” (Gemünden et al., 1997) or “*networking competency*” (Ritter and Gemunden, 2003; Ritter et al., 2002); in other studies, it is called “*network capability*” (Anand and Khanna, 2000; Möller and Svahn, 2003; Ziggers and Henseler, 2009). Others have also considered this concept as *networking capability* (Cho and Lee, 2003; Mitrega et al., 2012; Mort and Weerawardena, 2006; Mu and Benedetto, 2012; Walter et al., 2006).

There are various definitions for NC. In this respect, **Table 5** presents different kinds of NC definitions and dimensions obtained from the extant literature.

Table 5: Definitions and dimensions of Networking Capability (NC) in the related literature

Authors	Networking capability: its definition and nature	Dimensions/components
Ritter (1999) Ritter et al. (2002) Ritter and Gemunden (2003)	Networking competency is a company-specific ability to handle, use, and exploit inter-organizational relationships	<ul style="list-style-type: none"> • Task execution <ul style="list-style-type: none"> – Cross relational (Planning, organizing, controlling and staffing activities) – Relationship-specific (initiation of new relationships, exchange activities, coordination activities and adaptation) • Qualifications <ul style="list-style-type: none"> – Specialist (technical skills, economic skills, partners' knowledge) – Social (communication ability, conflict management skills, empathy, emotional stability, self-reflectiveness, sense of justice, and cooperativeness)
Cho and Lee (2003)	“Networking or linkage capability refers to specific skills needed to interact with the environment, plug into and tap the external technological resources and infrastructure, and transmit one’s own technology to others” (p. 413).	<ul style="list-style-type: none"> • Global networking <ul style="list-style-type: none"> – Searching foreign technological sources and experts – Arranging relationships with global business partners • Local networking <ul style="list-style-type: none"> – Establishing relationships with local business partners (government, universities, public R&D institutions, etc.) – Plugging into business partners’ resources and tapping them
Möller and Svahn (2003)	“Network capabilities: a firm’s capability to influence and leverage various networks can have a significant impact on its market and financial performance”(p.210) <i>Dynamic net management capabilities</i>	<ul style="list-style-type: none"> • Creating and managing strategic business nets <ul style="list-style-type: none"> – Net mobilization – Net management – Network visioning – Network orchestration capability
Mort and Weerawardena (2006)	Networking capability is “the capacity of the firm to develop a purposeful set of routines within its networks, resulting in the generation of new resource configurations and the firm’s capacity to integrate, reconfigure, gain and release resource combinations”. <i>NC is a dynamic capability</i>	<ul style="list-style-type: none"> • Extending existing networks • Developing new networks
Walter et al. (2006)	“A [firm’s] network capabilities (NC) as its abilities to initiate, maintain, and utilize relationships with various external partners” (p.546). <i>NC is a dynamic capability</i>	<ul style="list-style-type: none"> • Coordination, • Relational skills • Partner knowledge • Internal communication

Authors	Networking capability: its definition and nature	Dimensions/components
Ziggers and Henseler(2009)	Inter-firm network capability (INC) as a firm’s capability that can help it to foster close working relationships, build effective network structures and develop a long-term orientation (p.795). INC is a high order capability (<i>dynamic capability</i>)	<ul style="list-style-type: none"> • Developing an effective network structure • Focusing on a limited number of suppliers • Developing a long-term orientation
Mitrega et al. (2012)	Defines NC “as the set of activities and organizational routines which are implemented at the organizational level of the focal company to initiate, develop, and terminate business relationships for the benefit of the company”(p.741) NC is associated with the <i>dynamic capability</i> view (DCV) NC is a managerial capability	<ul style="list-style-type: none"> • Relationship initiation capability (RIC) <ul style="list-style-type: none"> – Selecting valuable new business partners – Attracting valuable business partners • Relationship development capability (RDC) <ul style="list-style-type: none"> – Inter-company development capability – Interpersonal development capability – Conflict management • Relationship termination capability (RTC) <ul style="list-style-type: none"> – Selecting unfavorable business relationships – Discontinuing relationships with unfavorable partners
Mu and Benedetto (2012)	“Networking capability is the ability of a firm to exploit its existing ties (both strong and weak) and explore new ties (both strong and weak) with external entities to achieve resource (re)configurations and strategic competitive advantage as markets emerge, collide, split, evolve, and die” (p.7) NC is a <i>dynamic capability</i>	<ul style="list-style-type: none"> • Search for and find network partners • Manage network relationships • Leverage network relationships

Based on Ritter and Gemunden (2003, p. 746), *networking competency* is defined as “a company-specific ability to handle, use, and exploit inter-organizational relationships”. They suggested task execution and qualifications as two dimensions of NC and for each dimension presented several sub-components.

Cho and Lee (2003, p. 413) state that NC is the “specific skills needed to interact with the environment, plug into and tap the external technological resources and infrastructure, and transmit one’s own technology to others”. Global networking and local networking are considered as components of NC to establish relationships with global and local business partners (BPs).

Another group of scholars (Möller and Svahn, 2003; Mort and Weerawardena, 2006; Mu and Benedetto, 2012; Walter et al., 2006; Ziggers and Henseler, 2009) have approached NC based on the dynamic capability view (DCV) as a different perspective. For instance, Walter et al. (2006, p. 546) view NC as a dynamic processes and a higher-order resource. They considered NC as a dynamic capability and defined it as a “firm’s abilities to initiate, maintain, and utilize

relationships with various external partners”. Walter et al. (2006) have distinguished four dimensions for NC, namely coordination, relational skills, partner knowledge and internal communication.

A close look at the above definitions and other several major studies associated with NC (see **Table 5**) reveals that there is no general agreement between scholars around the definition of NC and its dimensions. Only recently have researchers attempted to conceptualize NC in a new setup based on prior studies. For example, Mitrega et al. (2012) used both the dynamic capability view (DCV) and relational view (RV) to develop an *integrated perspective* of NC. Based on this new view, NC is a managerial capability, and it is defined as “the set of activities and organizational routines which are implemented at the organizational level of the focal company to initiate, develop, and terminate business relationships for the benefit of the company” (Mitrega et al., 2012, p. 741).

To measure NC, Mitrega and his colleagues identified relationship initiation capability (RIC), relationship development capability (RDC) and relationship termination capability (RTC) as components of NC. Likewise, each component itself includes several sub-components. In this regard, selecting and attracting valuable new business partners are sub-components of relationship initiation capability (RIC). As such, inter-company development capability, interpersonal development capability and conflict management are three sub-components of relationship development capability (RDC). Finally, relationship termination capability (RTC) includes the two sub-components of selecting unfavourable business relationships and discontinuing relationships.

Following the discussion above, for the purpose of this study the author of this thesis considers Mitrega et al.’s (2012) NC definition along with its components. There are several reasons for this position based on this definition of NC. First, it has considered NC as the integration of several relationship stages. Second, for each relationship stage (component), it has identified several sub-components, thus making it easier to evaluate NC inside the firm. Third, it focuses on different exchange partners rather than specific partners (e.g. suppliers or customers).

According to the dynamic capabilities literature, these capabilities can generally be influenced by the following various antecedents. The first group of antecedents is made up of human capital skills, experiences, knowledge, social capital as well as their (senior managers, employees and

team members) cognition and insight (Adner and Helfat, 2003; Helfat and Peteraf, 2003; Laamanen and Wallin, 2009; Teece et al., 1997a). The second group consists of management systems (Ambrosini and Bowman, 2009; Grant, 2010) such as information systems, and incentive systems to support the cooperation of the firm's people. The third group is composed of the firm's resource base combination such as access to new specialists, technologies, reputation, operation and knowledge (McKelvie and Davidsson, 2009). Finally, the fourth group of antecedents is comprised of organizational learning including repeated practices, experiences accumulation and codification (Eisenhardt and Martin, 2000). Specifically, NC can also be influenced by cross-functional teams (internal communication) as well as the firm's relational knowledge storage such as interactional knowledge (e.g., communication, negotiation and marketing) and functional knowledge (e.g., quality, operational, technical) (Pablo et al., 2007; Ritter and Gemunden, 2003; Walter et al., 2006).

2.5.1 Dimensions of NC

In order to have a more comprehensive model of the firm's NC, it is essential to consider all influential dimensions of the NC. As discussed in the previous section, for NC different components were identified and discussed. On this basis, like ACAP (see Section 2.4.1), dimensions of the NC may be classified into two main factors, namely networking factors (NF) and contextual factors (CFs), as illustrated in **Figure 3**. These two dimensions are explained as follows.

Networking factors (NFs) refer to a set of NC components such as relationships initiation capability (RIC), relationships development capability (RDC), and relationships termination capability (RTC). They are the internal characteristics of the NC, each of which has its own sub-components.

Contextual factors (CFs) refer to those drivers or antecedents that influence networking factors (NFs). CFs are external characteristics of the NC. As explained in the previous section, CFs include human capital, a firm's resource base, cross-functional teams, organizational learning, and management systems. All of these CFs include several sub-components.

Taken together, to examine the impacts of inward international licensing (IIL) on the firm's NC, the following theoretical framework is suggested (see Figure 3). This figure illustrates a model with several NFs and CFs which can be influenced by IIL in a firm.

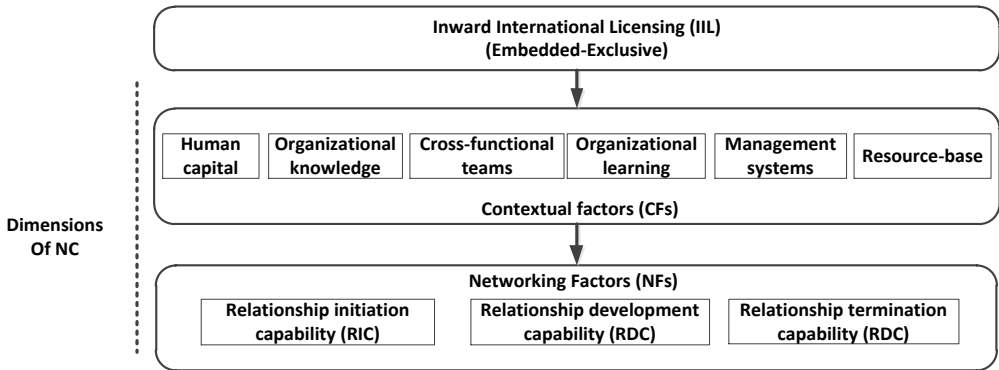


Figure 3: A model as a framework to examine the impact of the IIL on the firm's NC.

2.6 Summary

Given the purpose of the study, in this chapter a substantial body of literature related to inward international licensing, absorptive capacity and networking capability was reviewed. To assess the impact of IIL on SMEs' capabilities, it was, first of all, required to understand the nature of licensing. In this regard, in the first section of the chapter theories of licensing as a non-equity alliance were evaluated and reviewed. In this respect, different kinds of licensing were identified, and in order to determine the correct positioning among different types of licensing alliances, a framework was developed (see **Figure 1**).

Based on this framework, therefore, a researcher will be able to delimit the type of the licensing among a variety of them. Following this perspective, embedded, exclusive and inward licensing was determined as the nature of IIL for the purpose of this study. In the second stage of the chapter, drawing on a dynamic capability view (DCV) as a dynamic dimension of the resource-based view (RBV), absorptive capacity (ACAP) and networking capability (NC) were considered as two crucial dynamic capabilities of the firm which might be influenced by non-equity alliances such as IIL. To understand the possible impacts of IIL on ACAP and NC on SMEs in a developing context, the extant literature was examined. In this respect, it was revealed that the literature has remained silent in this area.

As can be seen in the conventional literature on ACAP, as discussed in this chapter, there is no general agreement among researchers about the sub-components and drivers of ACAP's construct. Lack of clarity in this area makes it difficult to study. Hence, to compensate for this void, an extensive body of extant ACAP literature was examined. Subsequently, for ACAP two main dimensions with several sub-components were defined: absorptive factors (AFs) and contextual factors (CFs), which are illustrated in **Figure 2** as a framework. This framework is used to analyse the impact of IIL on ACAP. Similar to absorptive capacity, the literature on networking capability was critically evaluated. On this basis, an attempt was made to establish proper positioning within different streams of NC literature, and to find an appropriate definition for NC along with relevant components and sub-components. Then, several drivers of NC were identified. Next, to evaluate the impact of IIL on the NC of SMEs, like ACAP, a framework was developed as shown in **Figure 3**. Putting the two frameworks of the ACAP and NC together (illustrated in **Figure 2** and **Figure 3**), the following general framework (see **Figure 4**) is proposed as the essence of this chapter to examine the possible impact of IIL on the ACAP and NC of SMEs.

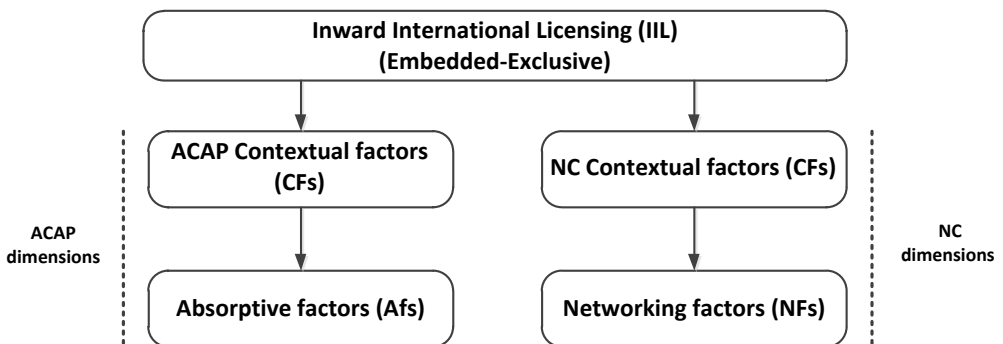


Figure 4: A model as a framework to examine the impact of IIL on a firm's ACAP and NC.

3 Research methodology

In this chapter, in order to realize an appropriate research design, the type of research is specified. Subsequently, based on the determined nature (type) of the research, required explanations are given for selecting a research strategy to perform the enquiry. In addition, the chapter explains the reasons for selecting the case studies, methods of data collection and data analysis. Finally, the chapter is concluded by highlighting the required conditions to ensure the quality of the study.

3.1 Methodology

A closer look at the common methodology literature reveals that there are various types of research. From the purpose point of view, Yin (2008) names three types of research: descriptive, explanatory and exploratory. From the outcome perspective, research can be divided into three different types: applied research, theory elaboration research and basic research (Hedrick et al., 1993; Patton, 2001). In terms of data, research can be classified into qualitative research, quantitative research and mixed research (a combination of quantitative and qualitative) (Creswell, 2012). Given these three types of research, numerous combinations of research types can be concluded (see **Figure 5**).

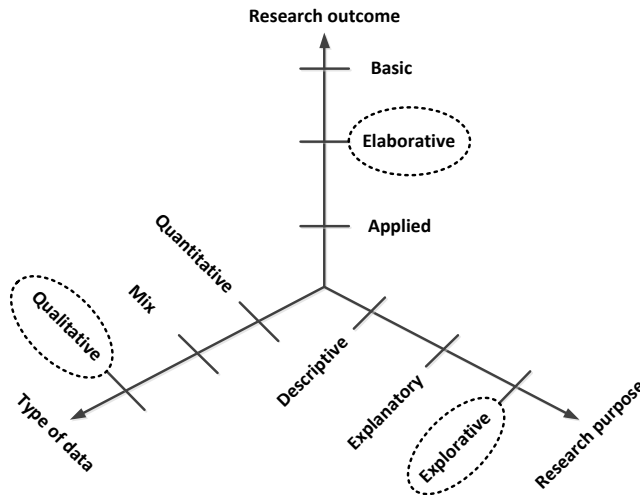


Figure 5: A model to determine the positioning of the research; e.g., in this study, it is qualitative, explorative and elaborative in nature (adapted from Arabi (2008)).

To find the incorporated research type, it is essential that a researcher situate its position among the three types of research as illustrated in **Figure 5**. Consequently, to determine the nature (type) of the research, a researcher should answer the three following questions.

- What is the purpose of the research?
- What is the type of the research data?
- What is the outcome of the research?

It is, obviously, clear that having a given research type provides specific direction to the researcher to design the research procedure. Therefore, the author of this thesis strongly believes that finding the answer to the above questions is a significant departure to find an appropriate research strategy and associated research methods to perform the study. In this regard, the next section will determine the nature (type) of the current research based on related factors.

3.2 Research type (nature) positioning

This study is focused on the SMEs involved in international business activities through IIL in the context of a developing economy (Iran). In the study, SMEs were considered as those firms with fewer than 500 employees.

The philosophical worldview of this research is social constructivism (Creswell, 2009). According to this paradigm, researchers try to develop subjective meaning from the situation that is forged from discussion with people. Considering that, this research explores the impacts of IIL on SMEs' dynamic capabilities with a focus on ACAP and NC. On this basis, the purpose of the study is explorative; consequently, a qualitative approach will be more favorable (Eisenhardt, 1989; Yin, 2008). The reason for selecting this approach is related to a complex, detailed and deeper understanding of the IIL's impact on the SMEs' ACAP and NC in a developing context, which is not achievable with quantitative investigation. Therefore, empirical data will not be easy to describe in numbers. In other words, in this study the type of data will be words rather than numbers. Finally, in terms of outcome, this study leads to theory elaboration (development). Accordingly, this research is explorative, qualitative and elaborative in nature. This positioning has been highlighted in **Figure 5** by the dotted ovals.

3.3 Research strategy

Based on the research type (noted in the last section), a multiple case study (Yin, 2008) was selected as an appropriate research strategy to achieve the research purpose and objectives. Multiple cases were used to follow different perspectives, using the logic of replication based on each case (Creswell, 2012; Yin, 2008). According to Eisenhardt (1989) and Patton (2001), all cases were selected purposefully (for theoretical reasons and information richness). The required criteria for case selection were SMEs of different sizes which have had a successful, exclusive, and embedded IIL from the world-leading companies located in developed countries. In line with these considerations, all cases were selected from the pharmaceutical industry for several reasons. First, as was mentioned in Chapter 1, licensing is a common tool in this industry in Iran, and many companies have been licensed for instance by European pharmaceutical large-scale enterprises (LSEs). In other words, licensing is a well-established tool for SMEs in the Iranian pharmaceutical industry, especially regarding the exclusive and embedded IIL. Second, as noted above, having cases with information richness was significant; hence, given that the author of this thesis had access to information and a personal network from and within the pharmaceutical industry, such cases were available. This accessibility of rich data is an effective way to provide a much broader picture for the study (Diefenbach, 2009). To some extent, access to these kinds of data and information might not be easily possible for other researchers.

It is important to note that in this study, the real names of the licensees (pharmaceutical SMEs), licensors (pharmaceutical LSEs) and interviewees are not mentioned due to ethical and privacy observances (Flick, 2009).

3.4 Research map

In order to do realize this research, several sequential activities have been followed and performed. These activities are presented as follows:

- Systematic literature review for licensing, dynamic capabilities, ACAP and NC
- Finding the right positioning within the literature and recognizing the research gap
- Developing the research purpose and designing relevant research questions (RQs)
- Synthesizing needed literature or a theoretical framework for licensing, ACAP and NC

- Research design (type of research, research strategy, data collection and data analysis methods, reasoning style)
- Multiple case studies (case selection, finding respondents, data collection, and data analysis)
- Research conclusion

Obviously, all these activities are dynamically related together, and during the research implementation, were evaluated at each stage of their performance. Then, all stages were aligned with each other. Furthermore, the research quality has been assured through controlling the reliability and validity of the research process and related data. All explanations above are shown as follows (see **Figure 6**).

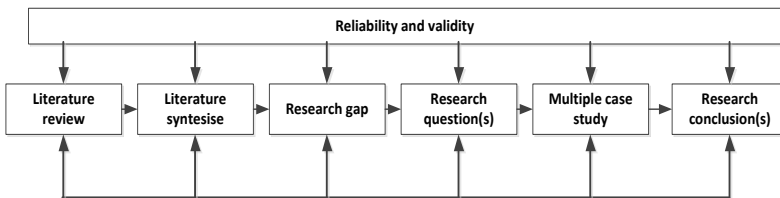


Figure 6: The process of the research (research map).

3.5 Data collection

Data was gathered from multiple sources of information to answer the research questions. Multiple sources of information were helpful to provide an in-depth picture of the cases. The main source of primary data collection in this study was in-depth interviews with respondents from SMEs. In addition, the firms' archival documents such as department reports, annual reports of boards of directors, as well as formal information from firms' websites (both licensees and licensors) and Iran's stock markets were used as secondary data. In this study, the secondary data were used for the introductory part of the thesis and to explain the research context and case characteristics in Chapter 4. To perform the interviews, two semi-structured interview guides (see Appendix I), including open-ended questions, were arranged based on the reviewed theories (Eisenhardt and Graebner, 2007; Yin, 2008) of ACAP, NC and IIL. During the interviewing, the author of this thesis was sometimes faced with "Yes" or "No" answers; when this occurred, the respondent was then asked "why" or "how" types of questions to help reveal the reality and complete the picture of the phenomena.

Data was collected from four Iranian pharmaceutical SMEs (Cases A, B, C, and D) licensed by different European pharmaceutical large-scale enterprises (LSEs) as licensors. As was discussed in Chapter 2, both capabilities of ACAP and NC are firm-level capabilities; therefore, people from different departments, functions and organizational levels of the SMEs who had been involved in the IIL project could be targeted as interviewees to answer the questions. In addition, IIL as a strategic alliance is also a firm-level phenomenon, because many people from different departments of the firm are involved during its implementation. Accordingly, in this study the unit of analysis is the firm level, and it is not limited to the special functions.

To find the right informant respondent, the snowball technique was used. In this regard, in the first stage, the author of this thesis gained access to the selected informant respondents based on discussions with the main gatekeepers of SMEs, such as CEOs and board members. Then, other respondents were found through asking those introduced by gatekeepers. In line with this consideration, qualitative data was gathered through face-to-face interviews with highly knowledgeable informants (Eisenhardt and Graebner, 2007) from different organizational levels within the SMEs.

All interviews were conducted in the interviewee's office as it was a comfortable and secure place for them (Seidman, 2012). Informant respondents were members of the board, CEOs and managers of R&D, marketing, and production, as well as other key people who had rich experience and knowledge during the process of IIL in each SME. In total, there were interviews conducted from 18 respondents (18 interviews to study ACAP and 17 interviews for NC), as illustrated in **Table 6**. The interviews were implemented separately. For example, when there were two interviews scheduled during one appointment with a given respondent, then a short break was arranged between the ACAP and NC interviews. In several cases, the interviews were conducted on two different days. However, as **Table 6** shows, in Case A the licensing project manager only answered the questions regarding ACAP. Each interview lasted between 1 and 1.5 hours.

Table 6: The profile of the informants in the studied cases

	Respondent position	Educational background	Experience(years)	ACAP	NC
Case A	–CEO and member of the board	– Pharmacist/MBA/PhD	15	+	+
	– Technical and licensing manager	– Chemistry/ MSc	13	+	
	– Business manager	– MD / MBA	12	+	+
	– Project development manager	– Pharmacist	24	+	+
	– Production manager	– Pharmacist	13	+	+
	– Marketing manager	– Pharmacist / MBA	15	+	+
Case B	– CEO	– Pharmacist	22	+	+
	– Marketing manager	– Pharmacist	15	+	+
	– Member of the board	– BSc and MSc in engineering	21	+	+
	– Production manager	– Pharmacist	15	+	+
Case C	– CEO	– Chemical engineering/MBA	21	+	+
	– Member of the board	– Pharmacist	31	+	+
	– Commercial manager	– Chemistry/MBA	22	+	+
Case D	– Project manager	– Chemical engineering/MBA	28	+	+
	– CEO and member of the board	– Pharmacist / MBA	21	+	+
	– Marketing manager	– Pharmacist /MBA	15	+	+
	– Commercial manager	– Pharmacist / MBA and PhD	15	+	+
	– R&D manager	– Pharmacist/MBA	15	+	+
Total interviews for each concept of the ACAP and NC				18	17

Based on the permission obtained from all the respondents for recording, each of the interviews was recorded. All informants were briefed on the security and confidentiality of the material. The recorded interviews were transcribed and then reviewed and carefully checked. Finally, to analyse the interviews, all transcribed interviews were transcribed from the Persian into English.

Likewise, in order to avoid conclusion bias or any other likely problem, the results of the interviews were checked by the author's supervisors. In case of the existence of any doubt, a new interview could be repeated with the same questions and the same given respondents. For instance, in Case A, after transcribing the interview of a manager, there was something unclear; the author then decided to repeat the questions in a new interview with him to solve the problem.

It is important to note that the author's many years of managerial experience and personal network in Iran's pharmaceutical industry was helpful to find potential purposeful samples (cases), along with knowledgeable informants associated with his research area. In addition, being familiar with common jargon within this industry played an important role in fostering effective mutual communication with respondents during interviewing, as well as having a more satisfactory interview procedure.

3.6 Analytical (reasoning) approach

Before considering how collected data are analysed, the analytical research approach in a study should be explained. Based on the "style" of reasoning, there are three major approaches, known as *inductive*, *deductive* and *abductive* (Dubois and Gadde, 2002). Each of these approaches has its own research process that differs in starting point, aim, and the point that the conclusion is drawn (Kovács and Spens, 2005). Deductive reasoning is the style that the conclusion is deduced from the operationalization of the developed hypothesis or propositions (derived from existing theories). In other words, it starts from a general truth to infer a particular fact. In contrast, the inductive reasoning style starts from the empirical level (real-life observation) and leads to a theoretical conclusion. On this basis, a general proposition is inferred from a particular fact. New theory generating is often concluded from a pure inductive approach.

Another analytical approach is the abductive. In abductive reasoning, the researcher is simultaneously involved in the theoretical and empirical levels. In this regard, *theory matching operation* is done in a back-and-forth direction between the observed data and theories to achieve new insights and conclusions. A real-life observation is the starting point for much abductive research. However, in some cases the theoretical level is the starting point of other researchers. The main outcome of this analytical approach is theory development, rather than theory generating (Dubois and Gadde, 2002; Kovács and Spens, 2005).

The abductive reasoning style is applied to this research where it seems to be best suited for the research purpose. In this study: (1) a theoretical framework was drawn based on existing theories; (2) empirical data was collected from the cases; (3) theory matching was performed; (4) final conclusions (theory suggestions) were drawn; and (5) managerial implications (applications) were suggested. This abductive process has been visualized in **Figure 7**.

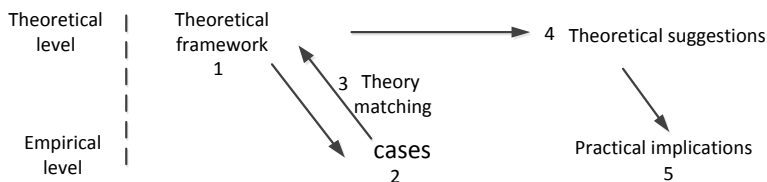


Figure 7: The abductive process in this study, adapted from Kovács and Spens (2005).

3.7 Data analysis

The data analysis process is one of the central parts of every qualitative research study. However, all parts of a research process are interrelated. There are various methods to analyse qualitative data; during the process of data analysis in this study, the methods and suggestions of Miles and Huberman (1994), Creswell (2009) and Seidman (2012) were used for data reduction, drawing conclusions and verification.

At the beginning of the study, collected data was organized for each case separately (each case itself consists of several profiles of participants). Before starting the analysis, in order to get a sense of the whole, for each case, the transcripts were read several times. To analyse the collected qualitative data, it is very important that the researcher selects relevant codes, as these play a central role to bridge qualitative data to the theory and literature review. This bridging role took place by reducing codes into different themes, categorizing themes, and linking these themes to the relevant concepts which are rooted in theory section. In this study, a *prefigured* coding strategy was used; however, in order to identify new likely factors, the *emerging* codes approach was also used simultaneously (Creswell, 2012, 2009).

The coding process was followed based on the respective theories for ACAP and NC, which were synthesised in related theoretical frameworks. To do this, components and sub-components of ACAP and NC dimensions (resulting from the literature review) were used. In this regard, all interviews within each case were carefully evaluated and marked based on the relevant codes, passage-by-passage and participant-by-participant. Several new files were created to classify and sort the coding data for more reducing. Then, different analytical notes (memos) were developed. Based on each interview within a case, generated memos were grouped under relevant themes for every dimension of ACAP and NC. It is important to note that during the scanning of the

texts (interviews), some respondents had provided the answer to a question in the latter or previous questions in an interview. Furthermore, during the scanning of the interviews, for example for NC, in some cases some answers were found (based on defined codes) which were related to the questions of the ACAP, and vice versa.

Afterward, all generated results from each interview were incorporated as the output of within-case analysis. Likewise, in order to portrait the overall picture emerging from this multiple case study, as well as to look for similarities and differences among the cases, the cross-case analysis was followed based on the analytical results drawn from the stage of within-case analysis. Finally, building on multiple sources of information in order to better understand the research context, a detailed case description of cases was prepared, which is presented as the research context (the cases) in the next chapter. The ultimate findings of data analysis are presented in Chapter 4.

3.8 Research quality

To perform a systematic inquiry, it is important to judge the quality of the research in the process of investigation. There are three significant issues which are associated with research quality assurance in case studies: reliability, validity and generalizability (Yin, 2008). Reliability is a measure of the extent to which a set of results can be regarded as being dependable. Validity is a measure of how well the results can be justified and considered to be a true and accurate reflection of reality. To address validity, it is essential to ensure both construct and internal validity. Generalizability is a measure of how well the conclusions of the research can be applied to the population as a whole. Generalization in case studies is based upon analytical generalization, where the researcher tries to generalize a particular set of findings into a border theory. Generalizability is sometimes referred to as external validity. In order to address the reliability, validity and generalizability of this study, several tactics should be taken for each. To do this, during the research process, associated tactics were used to ensure the quality of the research based on different suggestions by Yin (2008), Flick (2009), Creswell (2012) and Miles and Huberman (1994). Applied tactics for each component of research quality are separately presented in **Table 7**.

Table 7: Applied tactics to ensure research quality with focus on validity and reliability.

Measures taken to ensure the quality of this research in different stages of the research process

Construct validity

- Based on a clear research process, a chain of evidence was established (e.g. theoretical framework of ACAP and NC, collected data and research findings).
- Multiple sources of evidence were used.
- Different respondents from various functions were interviewed for the cases using a similar semi-structured interview, which led to data triangulation.
- To minimize the risk of errors and misunderstandings, case study reports were reviewed by key informant respondents.

Internal validity

- To minimize interpretation bias, the collected data is presented when possible based on exactly what the respondents said. Furthermore, direct quotations of interviewees are used.
- To avoid the conclusion bias, the interviews' results were checked by supervisors.

External validity

- The research context and associated characteristics for the studied pharmaceutical SMEs are described.
- To perform analytical generalization several propositions for future studies were generated based on explored research area for future research (to be generalized).
- Multiple-case units were used to address replication logic (as a significant factor to ensure external validity).
- Empirical data was compared with theoretical findings.

Reliability

- Research procedures were documented.
 - An interview guide was prepared.
 - All interviews were recorded, transcribed and documented.
 - Collected data were documented and archived.
 - To avoid influencing interviewees, open-ended questions facilitated an appropriate condition to obtain the respondents' own words and opinions (this was also important to eliminate bias).
 - To avoid incorrect interpretation and likely bias, the author's interpretation was checked by his supervisors.
 - The author's past interviewing experience was utilized.
-

4 Presentation of data (Cases)

This chapter begins with a description of the research context, including characteristics of the studied cases. Then, findings resulting from the collected data are presented. Here, the findings on the impact of IIL on the two capabilities of ACAP and NC are separately presented.

4.1 Research context (the cases)

In order to get a better understanding of the research context, the following general information and explanations are briefly presented for the studied cases and their relevant context.

As was noted in Chapter 1, during the last decades many pharmaceutical companies (mostly SMEs) in Iran engaged with world-leading pharmaceutical companies through non-equity strategic alliances such as inward international licensing (IIL).

This study focused on four SMEs with different sizes in the context of the pharmaceutical industry in Iran. These SMEs (Cases A, B, C, and D) have obtained licenses from top 10, well-known leading European pharmaceutical large-scale enterprises (LSE 1, 2, 3, and 4). The companies in Cases A, B, and D obtained unique, special, advanced and off-patent pharmaceutical products from their licensors, whereas the company in Case C obtained the license of several generic products from its very large global licensor. Off-patent refers to those products that are protected by patent, and they are produced by their brand name rather than a generic name. Generic products refer to those products which do not have a patent. These licensee firms found access to know-how in several areas such as marketing, manufacturing, processes validation, purchasing, quality assurance, equipment, and technology.

Their size (number of employees), annual sales, market share, reputation and growth rate have been intensively enhanced after inward licensing alliances. In this respect, several characteristics of the studied firms are illustrated in **Table 8** on a case-by-case basis.

Table 8: Characteristics of the studied cases; in this table, IIL refers to inward international licensing.

Licensee	Case A	Case B	Case C	Case D
Licensors(s)	LSE 1	LSE 2	LSE 3	LSE 2, 4
Size of licensors(s)	~40, 000	~100, 000	~150, 000	~100, 000-100, 000
Type of IIL	Exclusive-embedded	Exclusive-embedded	Exclusive-embedded	Exclusive-embedded
Licensed technology	Off-patent	Off-patent	Generic	Off-patent
IIL date	2000	2002	2010	2006
Project performing time/year(s)	3	2	1	3
No. of licensed products	7	2	16	28
Size before IIL	~220	~200	~10	~30
Size a year after IIL	~450	~250	~40	~150
Annual sales before IIL (M\$)	16	4	1	20
Annual sales a year after finishing the IIL project (M\$)	81	45	20	60

All studied SMEs were regularly audited by their licensors before, during and after the licensing projects. All the case companies, in order to obtain licensing, had to improve the level of their Good Manufacturing Practice (GMP), Good Laboratory Practice (GLP), Good Storage Practice (GSP) and Good Distribution Practices (GDP) as required standards to produce licensed products.

Establishing these new levels of pharmaceutical standards resulted in a change in the various aspects of the organization in all licensees. Aspects such as process validation, reconstruction of infrastructure, education, renewing equipment, purchasing standards, customer relationships, marketing techniques, quality and many other relevant issues improved or completely changed.

In order to manufacture the licensed products, all licensees established new production lines based on the licensors' quality requirements. These SMEs currently are leaders in the domestic market, especially for licensed products. All the case companies produce pharmaceutical products in various dosage forms of tablets, capsules, vials, injections, pre-filled syringes, ampoules, solutions liquids, syrups, gels, ointments and oral drops.

The process of executing licensing projects and their relevant technology transfer lasted 1-3 years. During this time, the licensor and licensee formed a common project team to follow and coordinate the project implementation programs. Licensing project team members in the studied cases (licensees) most often came from different functions such as engineering (technical), quality assurance, purchasing, marketing, sales, and production.

In all the cases, the licensee had recruited several people from outside the company to perform new projects. The formed project team has a leader who is directly connected to the CEO of the SME. In order to perform the licensing project, the necessary requirements and proper conditions (e.g. valid and qualified infrastructure, equipment, and production lines) are facilitated by the team members.

During the project implementation, a close technical and commercial collaboration took place between business partners (BPs) at different levels and functions. It is also important to know that during the period of the licensing project, extensive know-how and information in different areas were exchanged. The majority of the studied SMEs, after successful licensing, have been involved in new licensed product(s). Currently, the studied SMEs have a close business relationship with their licensors.

Case A is a pharmaceutical manufacturing company which produces more than 100 pharmaceutical products in various dosage forms such as capsules, tablets, suspension, syrups, ampoules and vials. Produced products are classified in different therapeutic categories including anaesthetic agents, antimicrobials, biologic agents, cardiovascular agents, corticosteroids, gastrointestinal agents, hormones, analgesics, nutritional agents, vitamins, electrolytes, and antihistamines. As **Table 8** shows, this company entered into a non-equity strategic alliance with a well-known European pharmaceutical large-scale enterprise (LSE). In this study, the licensor of Case A is labeled as LSE 1. The type of licensing agreement between the company in Case A and LSE1 was inward, exclusive and embedded in nature. Based on this licensing alliance, the company got the exclusive right to produce seven very advanced products with world-class quality standards. The majority of the firm's annual revenue has been allocated to these licensed products. After acquiring licensing, the firm got a well-known reputation and position in the market because of its high-quality licensed products. Licensing project implementation lasted

about three years. During this time, many activities (e.g., developing the production line and related facilities) were jointly carried out between the two companies.

Case B is an SME and a well-established manufacturer of pharmaceutical products in Iran. Its products are produced in different dosage forms. The company obtained the exclusive and embedded license of two unique, special and advanced pharmaceutical products from another well-known European pharmaceutical LSE, which in this study is labeled as LSE 2. The licensing projects were implemented over a period of two years. This company currently produces more than 50 pharmaceutical products. Ampoules, solutions, soft-gels, capsules, tablets and oral drops are some of the dosage forms of this SME in the market. As **Table 8** displays, after IIL its annual sales and size changed considerably. This SME experienced a comprehensive improvement program in various aspects to achieve desired conditions ordered by its licensor.

Case C is a very young SME, and before licensing it was a very small firm. It obtained a license for 16 generic products from a very large global company. Its licensor, labeled as LSE 3, has approximately 100,000 employees. The licensing project was implemented in less than one year. Currently, the company produces 25 generic finished products, mostly in different dosage forms of tablets. Due to licensing it has started substantial growth. The company purchased and installed advanced equipment to produce its pharmaceutical licensed products. Its generic licensed products are being sold with the licensor's brand name in the domestic market. The level of the production quality changed greatly in this SME. See **Table 8** for more details.

Case D was a small-sized (~30 employees) pharmaceutical firm before licensing, but through licensing alliances and acquiring modern technology, it has experienced rapid growth. As **Table 8** shows, this SME has obtained IIL from two well-known LSEs (2 and 4). Its first licensor is the same as the licensor of Case B. LSE 4 as the second licensor has around 100,000 employees. This company produces 26 high-quality and complicated products in various dosage forms of tablets, capsules, vials, injections, and pre-filled syringes. The main therapeutic category of this company is anti-cancer drugs. The first phase of the technology transfer project finished after three years (2006-2009), and the second phase is running currently (2013). In order to perform the licensing project, several licensing project teams have been formed.

4.2 Cases

Following the data collection, the relevant empirical data and findings are presented in the next sections. In this respect, the author of this thesis has respectively presented the data and findings of the studied cases for the two capabilities of absorptive capacity (ACAP) and networking capability (NC). For ACAP, the data are presented case by case, after which the associated findings derived from the presented data are shown in a table (see **Table 9**). Similarly, for NC, the data are first presented case by case; then, relevant findings are summarized as illustrated in **Table 10**.

4.3 Absorptive capacity (ACAP) data

In this section, the data of the ACAP collected from the four cases (Cases A, B, C, and D) are presented case by case. Within each case, data related to the four components of absorptive factors (AFs), i.e. acquisition, assimilation, transformation and exploitation, are presented.

4.3.1 Absorptive capacity (ACAP) - Case A

The results obtained from the collected data of this case show that all absorptive factors (AFs), namely acquisition, assimilation, transformation and exploitation, have been enhanced by inward international licensing (IIL) obtained from LSE 1. The following empirical evidence is provided for each absorptive factor within Case A.

4.3.1.1 Absorptive capacity (ACAP) - Case A: Acquisition

The data show that acquisition as the first component of ACAP in this SME has been influenced by IIL in relation to LSE 1. In this case, all respondents stated in different expressions that IIL, as a new experience and learning opportunity, resulted in a new situation through which people have found new business insights, attitudes, views, and experiences. These new insights have enabled the firm to find new external knowledge and technologies. In this respect, the technical manager in this case (Case A) said:

“...cooperation with the licensor put us in a new position to see better; the licensor transferred a new microscopic view [seeing the problem in detail] to our company. Based on this new insight, we can see details which we could not see previously [...] as it was noted, the company’s

personnel got new visions and insights. New recognition ability has been entered into our company... A new window was opened to our people by licensing...

The business manager of this case company labeled this new insight with different words (e.g., paradigm shift). In addition, he stated that his company has found new knowledge as well when he reported:

"...our general knowledge and attitude of the market changed; a new horizon and business scope expanded, and collaboration with the licensor changed my attitude on diseases and the planning for its implementation. I found more knowledge about the pharmaceutical industry [...] it was a type of paradigm shift in our company"

Moreover, the level of education in Case A has been influenced by training programs provided by the licensor. The project development manager of the case company said:

"...The licensor held various courses for workforces of the company..."

Furthermore, respondents in this case presented other reasons which gave the case company the ability to recognize valuable external knowledge. In this regard, several elements such as new technologies, marketing techniques and capabilities were presented by the CEO of the case company:

"...we attained new attitudes for working with new technologies [...] accordingly; marketing capability, quality management capability, and manufacturing capability, even post-marketing all impressed by licensing [...] the licensor taught us new marketing techniques and we became more capable to avail new customers..."

In line with these considerations, working with new requirements and new technical knowledge as effective issues was discussed by the production manager of the case company:

"...it [licensing] was a very positive experience...It [the license] transfers technical knowledge, quality package and standards of work [...] we urged by the licensor to buy the system from the supplier according to new requirements..."

Finally, obtaining new business tools such as the user requirement specification (URS) and getting a new reputation because of licensing are other effective features mentioned by the technical manager of the company in Case A:

“...our purchasing capability has been completely changed. Before licensing, the types of our demands were limited and it was just based on catalogs, but after licensing it has been extensively changed and we have been fully professional and skillful. Today not only do we not buy based on catalogs, but we also purchase based on user requirement specifications (URS). At present, we announce our demands in great detail to our suppliers and contractors... Cooperation with a pharmaceutical multinational company upgrades the reputation of the company as a licensee [...] the company can have more customers...”

4.3.1.2 Absorptive capacity (ACAP) - Case A: Assimilation

According to the other part of the empirical study, most respondents in this case believed that the firm’s ability to understand and interpret acquired knowledge has been influenced through collaborating with LSE 1 (licensor). In this regard, respondents presented several reasons related to the human resources of the case company such as new attitudes, insights, and interpretation philosophy, as well as visits to the licensor’s sites (practical training), etc. For instance, the project development manager of the Case A company believed that:

“...there was a new interpretation philosophy on how to interpret knowledge. All personnel were highly impressed; our visits [licensor’s site], regular communications and interactions with the licensor created the new attitude. All training courses changed our attitude. Communication with the licensor creates a new construction towards our attitude on needed knowledge...”

Moreover, the licensor has empowered the ability of the Case A company to analyze the data based on a new reasoning and logic; this issue was highlighted by the production manager of the company:

“...the licensor’s reasoning procedure was new for us...a new perception and insight entered into the company. Principles and logic of working were more important for the licensor rather than merely focusing on the problem. We were empowered more seriously to analyze the issues based on correct and logical reasoning. Performance of an operation needed rationality and reasoning; thus, we could discover them when there was a question. For each work a scientific and logical reason would be explored...”

Obtaining new knowledge was another reason listed by respondents as an influential factor for being able to understand and interpret the external knowledge. For example, the business manager of this case company recalled:

“...The licensor’s knowledge is very rich and it is the result of many years’ experience, and certainly, implementation of such knowledge is very fruitful [...] interaction with the licensor increased our knowledge [...] the licensee’s capabilities have been seriously changed ...”

In line with the above approach, new managerial insight about the knowledge and knowledge sharing was formed. Associated with this subject, the marketing manager noted:

“...generally, the attitude and insight of all managers and experts of the company changed [...] insight and attitude concerning knowledge and knowledge sharing changed. It was a basic evolution...”

Teamwork ability and getting a new scope of the attitude were other issues as enabled abilities within the case based on IIL. In this respect, the licensing project manager emphasized:

“...enhanced teamwork increased our potency and conception to understand new technologies. Our ability to perceive and interpret the new information and new knowledge has been improved [...] the scope of our attitude is extended and we can analyze 10 times more due to licensing [...] our analytical ability and power has been changed. Today we can analyze a problem based on different aspects and angles...”

In addition, obtaining new analytical techniques and knowledge, and tools like URS, were pointed out by respondents in this case as influencing the ability of the firm to interpret new external knowledge. For instance, the project development manager pointed out:

“...the licensor has been the main source of gaining and transferring the new knowledge and standards [...] we learned how to see the details. The licensor trained us and transferred new techniques to us. Before we did not know about URS, but if we intend to buy equipment, URS are a prerequisite...”

Regarding being familiar with new technical aspects (e.g. pharmaceutical due diligence), the CEO reported:

“...we learned the technique of gap analysis as well as the technique of fulfilling this gap, namely pharmaceutical due diligence...”

In line with this consideration, receiving an advanced level of good manufacturing practice (GMP) was another factor that the marketing manager pointed out:

“...Pharmaceutical companies have to exploit GMP principles as very authentic criteria to produce pharmaceutical products [...] when the company interacts with a powerful licensor, then it has to implement new standards that are more advanced [...] the license has institutionalized the global standards in our company...”

4.3.1.3 Absorptive capacity (ACAP) - Case A: Transformation

The collected data shows that different sub-components of transformation, e.g. coding, documentation, and knowledge communication, have been influenced in this SME (Case A) by several factors. In this respect, the following reasons were presented by interviewees from this case.

New skills were learned about documentation and standard operational procedure (SOP) writing, as well as the ability to transfer documented knowledge internally.

As an example, the business manager of the Case A company reported:

“...as I mentioned, the license was effective in all aspects [...] whatever we learned from the licensor transformed to SOP, we documented all items. Documentation is a basic principle of GMP and every action must be documented according to the GMP’s principles. Personnel of the company learned such skills because they needed to know how to document and how to transfer their knowledge through documentation...”

The marketing manager completed the above consideration by emphasizing maintenance and protection of the knowledge through learning coding skills and implementing new techniques of analysis:

“...one of our main weaknesses was maintenance and protection of knowledge. Our culture is commonly oral communication rather than written interaction. The licensor trained us how to codify documentation well. [The licensor] taught us new techniques of analysis, our colleagues are capable of analyzing different issues by implementing concerning techniques...”

In another part of the empirical study, the licensing project manager highlighted the ability of teamwork because of SOP writing and establishing new routines within the case after the licensing project.

“...Teamwork results in better development and formulation of SOP so that all employees of the company become more qualified and capable [...] because of the learned ability to write SOPs, we have learned how to establish new routines as well...”

In addition, the CEO of the case company recalled the enhancement of the internal communication, teamwork and knowledge sharing during the licensing project execution:

“...During project execution, the licensor required us to form several executive teams and a coordinator. Thus, we had the teamwork on licensed products. Accordingly, teamwork was empowered in the company, and we implemented the policy as a licensee for other products. Employees of the company learned how to implement the project and how to share knowledge and information by teams. Through these relations we had many innovative ideas in different parts of the company...”

4.3.1.4 Absorptive capacity (ACAP) - Case A: Exploitation

According to the collected data, exploitation in this case has been influenced by the licensor. Due to the project implementation under the licensor’s supervision and close technical collaboration, the company in Case A obtained technical capabilities, technical knowledge and equipment as well as skillful engineers. Moreover, the firm’s ability to develop new products has been enhanced. These skills and capabilities enhance the ability to exploit knowledge. In this company, licensing led to people’s self-confidence and risk-taking. In relation to this, the technical manager stated:

The company’s technical department finds new ability and power to develop new production lines [...] purchasing new machinery based on new technology brings a huge amount of knowledge [...] licensing enhances the company’s ability to transfer new and advanced technology [...] licensing made us more self-confident, personnel of the company could take more risks [...] we welcomed production of new products because we became more capable to develop new processes [...] our engineers without the licensor’s support could develop new cleanrooms along with new and high required standards [...] our imitation capability completely

has been changed and the company became highly capable to create similar processes and copy much more...”

In addition, the production manager believed that the case company gained new technical negotiation skills and process improvement:

“...we learned some good patterns [...] the licensor taught us the ways of process improvement and new product development. We learned technical negotiation...”

Moreover, due to licensing, a type of managerial attitude and motivation has been created in the company to develop R&D and technical departments, recruiting skilled people and establishing new relationships with scientific communities. In line with this point, the CEO of the company reported:

“...The number of personnel in R&D was 3, but after involvement with licensing they increased up to 15 [...] we implemented a student scholarship program through a co-development contract with scientific centers [...] we developed a technical department for the company [...] a close relationship with the licensor gave us an idea to work more on R&D projects; experts from our R&D were those people who had been involved in the licensing process and cooperated with the licensor. All cooperation processes were with scientific communities, clinical studies, involvement of university professors in clinical studies, bilateral studies with university centers...”

4.3.2 Absorptive capacity (ACAP) - Case B

As was noted in the section on case descriptions, this case company experienced a substantial growth rate after being involved with a well-known global pharmaceutical, LSE 2. The results obtained from Case B indicate that all four elements of AFs have been enhanced through implementing the IIL project. The relevant data for each component of AFs are presented as follows.

4.3.2.1 Absorptive capacity (ACAP) - Case B: Acquisition

Strong evidence of acquisition enhancement was found based on the respondents' beliefs. The ability of the firm to recognize and collect valuable external knowledge has been enhanced through several ways. In this regard, the company recruited new highly-skilled employees, and

has obtained new techniques, knowledge and technology as well as personnel with new insight. The CEO of this case company recalled:

“...the license motivated us to recruit new employees [...] we had 28 employees who had been awarded bachelor’s degrees, but this number increased to 81[...] therefore, the level of our people’s skills changed [...] we learned URS; this technique changed the insight and vision of our personnel. The combination of new highly-skilled employees and new technology from the licensor created a synergy for our company; therefore, we found new approaches and new insight which were completely different in comparison before licensing. We were empowered to gain more knowledge very soon and we did our best to promote it...”

Finding a new approach in marketing through the licensor’s motivation and new networking and relational ability are other influential factors to enhance the firm’s ability to find new external knowledge and information. In this respect, the marketing manager of Case B believed:

“...Before licensing, our approach related to marketing was traditional [...] our licensor modified the traditional approach of the company and we were induced to develop a new insight [...] our marketing system evolved. We modified our approach to the business relations as well as communications with customers [...] we linked to a new business network. The marketing department of the company learned how to identify new opportunities...”

The acquisition capability also was enhanced through being open-minded to capture new knowledge opportunities, being familiar with new information resources and learning new communication skills (e.g., language and negotiation techniques). A member of the board mentioned:

Companies that used licensing [...] the firm’s people have been open-minded. They can identify the signs and opportunities better. Knowledge of the English language and better communication has been simplified, identifying the process of the information too [...] we learned to buy information, to find information resources; knew how to identify knowledge [...] we know negotiation techniques”

In addition, obtaining a well-known reputation, and then, connecting to new business partners, were factors related to relational activities that have empowered after licensing. The CEO said:

“...Our brand became more popular among foreign pharmaceutical companies and networks [...] we linked to new resources of the knowledge [...] new business relations took place and some physicians, as well as scientific societies of the business companies, developed their relations with us...”

4.3.2.2 Absorptive capacity (ACAP) -Case B: Assimilation

In Case B, the ability to understand and interpret external knowledge or technology was effectively enhanced by IIL. The firm’s managers presented a variety of factors influenced in relation to the global pharmaceutical, LSE 2. Several factors, such as learning new knowledge, finding new terminology, and, in turn, new comprehensions about external knowledge, as well as learning new specifications, finding new indicators, and being more intellectual, were mentioned. A member of the board recalled:

“...we progressed in learning and found a completely different position, so, that licensor asked us to help them to transfer knowledge to its business partner in another foreign country [...] our approach changed towards new terminology; we found new comprehension about our business environment because our vision on knowledge has been changed [...] we learned how to prepare specifications [...] our company is more intellectual than before...”

Moreover, the ability to analyze and understand the data and obtain knowledge was empowered by effective training and recruiting of new, knowledgeable people (e.g., physicians). The CEO emphasized:

“...each licensor’s auditing was a valuable experience for our people. Technical behaviors of our people evolved, and everything was changed, even very small issues...all personnel learned more through an effective training process and learning speed increased intensively [...] our people became analysts too,[...] We had to recruit new, knowledgeable people. We recruited different physicians in different departments [...] they were more capable and qualified in understanding and obtaining knowledge...”

In addition, the case firm’s teamworking behavior was influenced by IIL, and had an effective impact on its analytical ability. As a member of the board pointed out:

“...the licensor has defined some requirements and we used to meet them. We are coordinated and always try to hold meetings. Continuous auditing by the licensor has changed our behavior [...] auditing has made it compulsory for us to be coordinated and to hold meetings...”

4.3.2.3 Absorptive capacity (ACAP) - Case B: Transformation

In response to the questions related to the transformation capability, all respondents believed that this capability has been strongly influenced. In this respect, they supposed that because of the licenses obtained from LSE 2, different aspects within the company have been influenced. For example, performing advanced principles of good manufacturing practices (GMPs) based on the licensor's orders, as well as completing the licensors' periodical audits, have enhanced different abilities and skills such as SOP writing based on new standards, documentation and maintaining acquired knowledge or technology. The CEO of Case B recalled:

“...our business cooperation with the licensor induced us to learn how to write and prepare needed SOPs [...] according to GMP principles, all actions should be written formally, and we must maintain records of the acquired knowledge and technology. We wrote plenty of SOPs, for every action, process, and routine and even for the most trivial operation, so, our coding capability developed...”

Moreover, executing these activities (e.g. SOP writing and auditing) has led to the strengthening of internal communication and teamworking. The marketing manager reported:

‘...Teamwork, technical activities and quality assurance must be routine [...] GMP needs documentation and empowers us in the documentation process. Teamwork is the nucleus of documentation. Audits and periodical tests need documentation.

In this case, licensing knowledge has been transferred to other non-licensing knowledge. In this respect, the production manager pointed out:

“...utilization of the acquired knowledge for new products made personnel of the company more capable [...] our business processes developed based on a framework. We wrote SOPs for non-licensed products from A to Z...”

4.3.2.4 Absorptive capacity (ACAP) - Case B: Exploitation

The collected data of this case show that obtaining off-patent licensing from a highly capable LSE has changed a variety of factors as sub-components of exploitation capability. Participants expressed the belief that the firm's ability to exploit new external knowledge is enhanced through implementing the super-specialty and high-tech drug projects during a period of two years' close technical collaboration with a powerful licensor. Because of implementing very advanced knowledge (entering into new treatment and therapeutic schools of thoughts), the case found new capacity to produce new products. In this case, obtaining new knowledge motivated the case firm to establish new relationships with universities.

A member of the board in Case B recalled:

"...licensing has opened new capacity for more development and growth [...] the company was empowered and gained more knowledge to produce various new products [...] imagine you have access to new knowledge that only four companies in the world can access [...] we have basically entered into a new treatment and therapeutic schools of thought [...] the licensor has motivated us to develop business relations and communication with universities..."

Based on promoted technical capability, manufacturing licensed products and the licensor's supports, this case company has obtained a new ability to develop other forms of products. It should also be added that due to licensing, a type of motivation has formed to support R&D investment and recruit more skilled employees. The CEO of the case company said:

"...from the licensor we learned how to manufacture the tablets. Then we produced pharmaceutical products in capsule form. Then, our employees could optimize the functional exploitation of different knowledge types within the organization. There were some problems and the licensor was a supporter for us when we faced critical situations, our technical potency and capabilities were highly promoted [...] we increased the investment rate for R&D when we were awarded the license. Our financial status improved and we could invest more [...] we noticed that we could not interact with current personnel, and decided to recruit some more skillful ones. The training process of the company evolved intensively..."

4.3.3 Absorptive capacity (ACAP) - Case C

Case C is the smallest case from size point of view; however, it has experienced a substantial growth after obtaining license for several **generic** pharmaceutical products. The collected data

from this case show that all AFs have been influenced by IIL. However, this influencing for exploitation in this case is not so high. The evidences of this changing are presented for four components of AFs as follows.

4.3.3.1 Absorptive capacity (ACAP) - Case C: Acquisition

The ability of this case company to recognize external opportunities (e.g. knowledge, information and technology) as well as acquire identified knowledge is highly enhanced because of different reasons presented by respondents. For instance, acquisition ability is enhanced because a high volume of the information has been exchanged between the licensor and licensee, as well as the learning of new marketing procedures. The commercial manager of the case company said:

“...The volume of exchanged information between the two companies is very high. Our people learn specific skills and this learning promotes the company [...] the licensor teaches marketing procedures for our people...”

This capability is also enhanced by other reasons, such as obtaining new tested knowledge and experiences from the licensor and a new vision to identify the firm’s needs and modern mechanisms of information collection. The CEO reported:

“...the licensor’s knowledge helps the licensee to upgrade its local knowledge by tested knowledge and experience [...] knowledge develops attitude and vision of the personnel, and they can identify their needs better than ever. It is very different from a pre-license position; naturally, the people obtain a large proportion of knowledge and information faster. We learned very modern mechanisms for information collection and feedback from physicians and the drugstores through the learning of marketing values...”

Furthermore, several other influences were presented by respondents such as learning new marketing techniques, developing new international relations and implementing new communications, along with the manager’s new motivation to promote their communication skills. A member of the board recalled:

“...We are not very powerful in marketing affairs, so the license is a helpful tool to attain such kinds of knowledge. Employees of the company learned marketing techniques, they knew how to

advertise; they learned how to penetrate complex markets; before we could not have such business relations easily; international relations and communications were promoted. Managers of the company had to promote their skills and proficiencies to communicate with business partners...”

4.3.3.2 Absorptive capacity (ACAP) - Case C: Assimilation

Working with LSE 3 as a powerful multinational licensor has resulted in assimilation capability development in Case C. In line with this consideration, informants from this SME provided several reasons for this development. For example, the firm’s personnel’s new experiences, training, and technical qualifications based on obtaining new knowledge are a variety of factors which enhanced the firm’s ability to analyze acquired knowledge. With respect to this, the CEO of the case believed:

“...surely, licensing speeds up the learning process. When you have attracted concerning knowledge to licensed products then you may succeed in analyzing new knowledge and information because of two reasons; firstly, your employees are experienced, trained and qualified; and secondly, they are more technical, and therefore understand better than before...”

Moreover, the license firm’s members are motivated to obtain more knowledge. In addition, during the licensing project a type of teamwork is formed by which the firm’s ability to interpret knowledge has been empowered. The commercial manager said:

“...licensing induces us to acquire more knowledge [...] during the cooperation with the licensor we learn to work as a team [...] teamwork empowers the knowledge interpretation [...] professional companies transfer us a large amount of new knowledge and experiences...”

Furthermore, assimilation capability is enhanced through acquiring new technical knowledge and new screening techniques. In line with this reality, the project manager described:

“...our personnel progressed more in the comprehension of technical knowledge [...] we learned concerning technology and knowledge, new screening techniques...”

4.3.3.3 Absorptive capacity (ACAP) -Case C: Transformation

In terms of transformation, according to the collected data, IIL has enhanced the ability of the firm to transform external knowledge. Transformation capability has been improved during licensor-licensee collaboration to write new SOP, obtain documentation knowledge for, and work on routine development as well as acquire new and unique skills. The CEO of the company believed:

“...as a licensee we have to write many SOPs. The process of SOP writing implemented by the cooperation of the licensor’s people and our personnel was a type of co-development cooperation. During this collaboration we obtained documentation and routine development knowledge. The licensor supported us and trained us to learn documentation [...] in the process of knowledge transfer, plenty of valuable and unique skills are created which will be exploited in the next operation and product development...”

In line with the above reasoning, the licensor’s auditing and SOP writing has led to the formation of a type of internal communication and cross-functional teamwork skill. A member of the board emphasized:

“...a continual auditing process in a company results in interaction modification; we need to update all SOPs. The nature of SOP writing is based on teamwork. SOPs must be written for both macro and micro affairs in the company; each activity should have its own SOPs. To do this, organizational internal relations should be modified toward teamwork-based behaviors. When you have to write a large volume of new SOPs, relations in the organization must firstly have been modified to pass successful auditing. Different departments should cooperate together, such as the QA department, production, marketing, technical, R&D department, etc.

Moreover, in this case, through learning the GMP and GLP principles the process of the routinization has been enhanced. In this respect, the project manager stated:

“...we learned encoding through GMP and GLP principles [...] we learned how make the complex process routine...”

4.3.3.4 Absorptive capacity (ACAP) -Case C: Exploitation

In this case, the empirical data does not provide evidence of a substantial impact of licensing on the exploitation capability; however, respondents believe that after licensing the ability of the

company to improve and develop existing products has been enhanced. In addition, people have found a type of risk taking after having new experiences as well as a new supporting strategy to develop R&D, however, in order to protect existing products. Managers presented the following reasons to show the impact of IIL on the firm's exploitation capability. The CEO of the case believed:

"...your knowledge is increased; the power of risk taking for new experiences increases. For instance, when you have learned the hydrogenation technique in a chemical molecule, naturally, you will be able to utilize it for the new molecule. Consequently, our people can be more effective for the next development processes..."

In addition, the project manager reported:

"...our personnel were very qualified, they attained knowledge [...] there were some process and product improvement actions, we implemented attained knowledge and we are more potent in improvement as well as development at the present..."

Moreover, the commercial manager said:

"...naturally, more attention will be paid to R&D investment, and we are going to invest in our research and development department for business survival. Especially to protect acquired knowledge.

4.3.4 Absorptive capacity (ACAP) - Case D

As was previously noted, this SME has obtained several licenses from two global pharmaceutical LSEs (LSE 2 and LSE 4). The findings of the study show that all four components of AFs have been significantly developed. The following results are presented component-by-component.

4.3.4.1 Absorptive capacity (ACAP) - Case D: Acquisition

Given the collected data, the firm's ability to identify external knowledge has been enhanced. Managers stated a variety of elements to show this enhancement. For instance, because of licensing the personnel's attitude has been changed. Managers believe that the firm's personnel, after involvement with LSE 2 and LSE 4, have found a new attitude, skills, and world-class qualification through learning by licensing. Due to licensing, this case company is able to see

external information and knowledge opportunities completely differently. In this regard, the CEO of the case specified:

“...our personnel did not have enough knowledge and skills previously, but during these international interactions their attitudes have been changed and their vision scope is more extensive at the present. Our people are more agile now [...] they [the licensors] transferred a valuable experience to us [...] qualifications and skills of human resources [...] should be adapted with the licensor’s requirements and conditions [...] there are too many training hours, pre-test, post-test implemented by the licensor [...] my people have found a world-class level respective to qualifications, knowledge and skills [...] they [the licensors] taught us marketing very well [...] international licensing was a university for our company...”

The licensors’ training (e.g., marketing) has enhanced the level of intelligence in the case. The marketing manager of the case company believed:

“...There are very effective training workshops for market development and the human forces trained by the licensor [...] these activities increase the level of the company’s intelligence...”

Furthermore, new opportunities, new business partners (e.g., suppliers) and new products have been accessible because of working with the licensor and created a new reputation. The R&D manager of the case specified:

“...working with the licensor results in attracting new opportunities; others introduced new products to us [...] potential suppliers welcome us at the present. All of these opportunities came based on the new reputation in our company because of interaction with the licensor...”

4.3.4.2 Absorptive capacity (ACAP) - Case D: Assimilation

The empirical data provides evidence for assimilation enhancement in this case. Many factors were presented by managers to emphasize the positive impact of IIL on the firm’s ability to interpret external knowledge and information. Regardless of this fact, the following related data are presented. Factors related to the firm’s personnel have resulted in better understanding and better analyzing of acquired information. Examples include: organized training by the licensor; learning new skills; licensors introducing qualified, capable and experienced foreign advisors and consultants; utilizing new and different patterns, standards and tools to evaluate business

partners (e.g. suppliers and distributors); and finding new insight and rules in different aspects such as good laboratory practice (GLP), good manufacturing practice (GMP), good storage practice (GSP), and good distribution practice (GDP).

In this respect, the CEO of the firm added:

“...we had field training for everything; the licensor trained us at its site, also trained us in the company. Personnel obtained new skills and experiences; enabled them to analyze needed information better [...] we learned analytical methods, the licensor behaved towards us precisely such as it would its own business unit (BU) [...] we learned from the licensor to utilize different models, patterns and standards for evaluation of distributors, our suppliers [...] we are acquainted with qualified, capable and experienced foreign advisors and consultants [...] human resources, production lines, GLP, GMP, GSP, and GDP must all have the same features of the international companies [...] international licensing enhanced our vision and insight...”

Furthermore, according to the collected data, during the licensing alliance the Case D firm has found a type of analytical ability due to applying new techniques of the risk analysis, brainstorming and cross-functional relationships between different departments. The CEO reported:

“...the licensor thought the risk analysis techniques; we learned the right methods for brainstorming, and tried to analyze the problems and risks in a team to solve it. [...] all responsible personnel were involved in brainstorming [...] whenever we have any problem from our business partners' side, it will be an offer to the relevant comity (cross-functional) to make the best decision and suggestions. The committee including all departments to implement a cross-functional plan...”

4.3.4.3 Absorptive capacity (ACAP) - Case D: Transformation

All managers in the Case D firm agreed that various factors have had an influential effect on advanced transformation ability. For instance, following the new training programs for applying advanced international standards, new experiences to exploit extra GMP according to licensors' regulations, developing IT infrastructures and a record keeping system, facilitating internal communication to share knowledge and information, and the manager's new approach to manage

the firm's knowledge and information are several influential issues on transformation capability. In this respect, the CEO of the company in Case D believed:

"...specifically, when the licensor is a global leader, you have to move alongside extra GMP [...] your people must be trained and attain the same level of the licensor's standards [...] the licensor taught us many techniques, SharePoint was one of them [...] the license evolved the infrastructure of IT [...] there are different kinds of committees and meetings to discuss and follow business issues. IT links all departments and people of the company to each other. Knowledge and information is shared by them through this system [...] the licensor urged us to develop a record keeping system and an archive and have documents maintained securely for 30 years [...] we know how to manage acquired knowledge. They made us capable and these activities enabled us to change our approach about information and knowledge management..."

It should also be noted that all respondents believed that learning SOP writing and documentation, forced by the two licensors, are other very effective activities to enable different sub-components of transformation. The R&D manager recalled:

"...the licensor taught us how to write SOP. We learned documentation and encoding [...] to write SOPs we needed teamwork and brainstorming, doing this method is necessary because we had to observe GMP's standards; all people had to learn the processes of documentation and SOP writing [...] SOP writing has had a very deep effect on R&D because it facilitates knowledge exploitation practically..."

4.3.4.4 Absorptive capacity (ACAP) - Case D: Exploitation

Exploitation capability as the fourth element of absorptive factors (AFs) has been influenced in this case strongly by being involved with two global pharmaceutical LSEs. Different factors were stated by respondents from Case D as significant reasons that show IIL has had an effective impact on various sub-components of exploitation. This case company has found the ability for new product development because of working with new technologies, new equipment and interactions with licensors. The R&D manager pointed out:

"...technology transfer and interactions of the licensor taught us many things. We knew what equipment must be used and why, every action was rational and we could produce new products without cooperation of the licensor, we launched the produced drug on the market and

developed the production processes; submitted relevant documents to the licensor for approval, they approved and we became more self-confident then...

Moreover, attaining advanced technologies and technical skills from licensors has enabled the case firm to develop new drugs. They have also found new motivation to connect with universities to hold existing technology as well as develop new products.

In this respect, the CEO of Case D explained:

"...licensing made the company very capable from a technical point of view [...] we attained the best and the most valuable technology and skills with the lowest cost; we produced novel complex drugs in cooperation with universities [...] we became capable enough to produce them even without the licensor's support [...] we are going to maintain status and develop cooperation with universities..."

The exploitation capability in this case has entered a new and different situation due to performing the licensing project. In this respect, they have found a new technical capability (e.g., pharmacy engineering, designing, process improvements) as well as the ability to launch their created technology by out-licensing. The CEO stated:

"...we have found the ability and knowledge of the designing of production lines as well as to export these services [designing of production lines]; we approached from the in-license to license-out stage, we are qualified enough to scale up; we have promoted to a right level of pharmacy engineering; and we defined a new pipeline for our company and we have designed our future plan for more advancement, improvement and promotions..."

As previously noted, this case company has been involved with two licensors, each of which with several products (diversified knowledge and technology). This involvement has influenced the exploitation capability through forming a type of technological storage within the case. In this regard, the CEO presented:

"...Different licenses in our company have created a focal knowledge transfer center. We had to adapt and coordinate ourselves with several licensors; thus, our capability is highly advanced in different areas. Every licensor had different quality standards, so this condition results in achieving storage(s) of technologies and knowledge in our company..."

Finally, all respondents stated that after licensing their company has found new motivation and an approach to support R&D investment and related relationships to be more familiar with the latest pharmaceutical technological achievements. The R&D manager believed:

“...to update firm’s technology, to maintain, and processes improvement need R&D investment as well as the licensor motivated us to promote in this regard. We invested in R&D, communication with the licensor was very effective to follow such patterns; furthermore, the licensor taught us to attend international scientific conferences and have contracts with scientific organizations; our scope of reflection is not just product, process, and so forth but we are communicating with the universities; and we have allocated some experts to communicate and develop these kinds of business relations...”

4.4 Absorptive capacity findings

In the previous section, relevant empirical data associated with the components of the AFs, including acquisition, assimilation, and transformation and exploitation capabilities was provided for all four cases. In this section, in order to simplify the analysis (in the next chapter) the key empirical findings derived and summarized from interviews are presented, as illustrated in **Table 9**.

Table 9: Cases findings derived from the interviews

		Absorptive factors (AFs)	
		Assimilation	Transformation
Acquisition	Assimilation	Transformation	Exploitation
<ul style="list-style-type: none"> – Peoples new business insight, paradigm shift, attitude, view, and new experience – Training programs provided by the licensor – New technologies, marketing techniques and capabilities – New requirements and technical knowledge – Obtaining new business tools such as user requirement specifications (URSS) and getting a new reputation 	<ul style="list-style-type: none"> – People’s new attitude, insight, and interpretation philosophy – Training courses and visiting the licensor’s sites (practical training) – New reasoning and logic for analyzing – Obtaining new knowledge – New managerial insight about the knowledge and knowledge sharing – Obtaining new analytical techniques, new knowledge and tools like URSS – Being familiar with new technical aspects (e.g. pharmaceutical due diligence) – Receiving advanced level of good manufacturing practices (GMPs) – Recruiting knowledgeable people (e.g., physicians) – Licensor’s effective training – New insight about knowledge and products – New specifications, indicators learned from licensor – Forming teamworking behavior because of licensor’s auditing 	<ul style="list-style-type: none"> – Learning new knowledge and skills for coding, protecting the knowledge, routine development, documentation and SOP writing – New knowledge management attitude – Teamwork and cross-functional communication by writing SOPs – New level of internal communication, teamwork and knowledge sharing during licensing project execution 	<ul style="list-style-type: none"> – Recruiting new, skilled people (e.g. engineers) – Learning technical negotiation skills and process improvement – New ability to develop new products and more risk taking – New ability to know partners’ expectations – Obtaining technical capabilities, technical knowledge and new equipment – Getting imitation capability – Establishing new relationships with scientific communities – Finding a new managerial attitude to develop R&D and a technical department – Entering into new treatment and therapeutic schools of thoughts – Recruiting new, skilled employees along with new training – New motivation to support R&D – New technical capability – Developing business relations and communication with universities – Running new products based on very advanced knowledge obtained from licensor
Case A			
<ul style="list-style-type: none"> – Recruiting skilled employees (e.g. marketer) – Obtaining new knowledge, tools, equipment, and technology – New approach to marketing based on licensor’s motivation – New networking and relational ability – New communication skills (e.g., language and negotiation techniques) – Licensor’s training – Being open-minded to capture new knowledge opportunities – Getting well-known reputation and connecting to new business partners 	<ul style="list-style-type: none"> – Learning new skills such as coding, documenting, knowledge maintaining, and teamworking – Strengthening internal communication through SOP writing forced by licensor – Development of SOPs based on new standards and knowledge – Performing advanced principles of GMP 	<ul style="list-style-type: none"> – Learning new skills such as coding, documenting, knowledge maintaining, and teamworking – Strengthening internal communication through SOP writing forced by licensor – Development of SOPs based on new standards and knowledge – Performing advanced principles of GMP 	<ul style="list-style-type: none"> – Learning new skills such as coding, documenting, knowledge maintaining, and teamworking – Strengthening internal communication through SOP writing forced by licensor – Development of SOPs based on new standards and knowledge – Performing advanced principles of GMP
Case B			
<ul style="list-style-type: none"> – Recruiting skilled employees (e.g. marketer) – Obtaining new knowledge, tools, equipment, and technology – New approach to marketing based on licensor’s motivation – New networking and relational ability – New communication skills (e.g., language and negotiation techniques) – Licensor’s training – Being open-minded to capture new knowledge opportunities – Getting well-known reputation and connecting to new business partners 	<ul style="list-style-type: none"> – Learning new skills such as coding, documenting, knowledge maintaining, and teamworking – Strengthening internal communication through SOP writing forced by licensor – Development of SOPs based on new standards and knowledge – Performing advanced principles of GMP 	<ul style="list-style-type: none"> – Learning new skills such as coding, documenting, knowledge maintaining, and teamworking – Strengthening internal communication through SOP writing forced by licensor – Development of SOPs based on new standards and knowledge – Performing advanced principles of GMP 	<ul style="list-style-type: none"> – Learning new skills such as coding, documenting, knowledge maintaining, and teamworking – Strengthening internal communication through SOP writing forced by licensor – Development of SOPs based on new standards and knowledge – Performing advanced principles of GMP

Table 9: cont.

Acquisition	Assimilation	Transformation	Exploitation
<ul style="list-style-type: none"> - New vision and learning new marketing procedures - Implementing new, modern marketing techniques motivated by licensor - Obtaining new knowledge and information - Intentional relations - New mechanisms of data collection - Manager's new skills (e.g., communication) due to license project 	<ul style="list-style-type: none"> - People's new technical skills, training, qualifications and experiences - Applying new technology and knowledge and new screening techniques - Forming a type of teamwork because of licensing project - Managers' new motivation to learn more knowledge 	<ul style="list-style-type: none"> - SOP writing skills - Obtaining the knowledge of documentation and routine development based on training and learned principles of GMP and GLP - Developing cross-functional teamwork skills and internal communication because of SOP writing and licensor's auditing 	<ul style="list-style-type: none"> - New risk-taking after licensing project - Producing new, similar products with existing facilities - Improving existing products and processes - R&D investment to protect knowledge obtained from licensor
Case C			
<ul style="list-style-type: none"> - New attitudes, skills, and world-class qualifications and training - New knowledge in different areas - New marketing know-how and capability - Firm's new level of intelligence - New business partners as new sources of opportunities - Getting well-known reputation 	<ul style="list-style-type: none"> - Licensor's training programs and new rules for GLP, GMP, GSP, and GDP created new business and technical insights - Utilizing new patterns, standards and tools to analyze the firm's business partners - Using new advisors and consultants introduced by licensors - Licensor's new methods for brainstorming - Forming cross-functional relationships between departments - Obtaining new advanced technology for production lines, quality etc. - Using new techniques for problem solving 	<ul style="list-style-type: none"> - Advanced standards provided by licensors - Using licensors' extra GMP rules - Realizing licensors' high level of writing SOPs, knowledge storing, and documentation methods enhanced collaboration in the firm - Developing IT infrastructure - Forming new managerial attitude to support internal communication and knowledge sharing - Training to attain the same level of standards as licensor 	<ul style="list-style-type: none"> - Obtaining diversified knowledge (both in scope and depth) and technology from two licensors - Learning new technical skills and capabilities due to executing complicated projects - Getting new technical capability (e.g., pharmacy engineering, designing, process improvements) - New technical communication with research centers (e.g., universities) - New R&D investment based on new approaches
Case D			

4.5 Networking capability (NC)

In this part of the thesis, the collected data (interviews) are provided case-by-case. For each case, the relevant data have been presented for NFs including relationship initiation capability (RIC), relationship development capability (RDC) and relationship termination capability (RTC).

4.5.1 Networking capability (NC) - Case A

This SME experienced a considerable rate of growth after obtaining IIL. The data show that IIL has had an effective impact on several dimensions of NC. However, no evidence was found to show that relationship termination capability (RTC) has been influenced by IIL.

4.5.1.1 Relationship initiation capability (RIC) - Case A

During collaboration, the Case A and LSE1 relational initiation capability has been influenced by different actions. In other words, the ability of the case company to identify attractive business partners (BPs) and communicate with newly identified BPs has been influenced through IIL. For instance, new marketing techniques, access to new business networks (e.g., a network of international suppliers), and the licensor's organized training programs have resulted in new skills, qualifications and business insight among employees of the case company, as well as new business opportunities, attractive BPs and communication skills (e.g., English language and negotiation) to convince the firm's BPs. In this regard, the following respondents from the case reported:

"...the licensor taught us new marketing techniques and we became more capable to avail new customers [...] through the licensor's business partners we had access to new facilities and new opportunities [...] the licensor introduced different networks of suppliers to our company; we identified and availed new suppliers, communication and business relations with the international suppliers..." – **CEO**

"...cooperation with large companies helps us to grow and advance. Communication [skills] of the employee advances more; the majority of employees can speak English [...] negotiation and communication ability of the company increased..." - **Project manager**

"...the licensor organized training courses to improve qualifications and skills of the human resources [...] we took some patterns and models from the licensor..." - **Marketing manager**

“...we learned new things, therefore our glasses [insight] changed and we could see the problems by these new tools, and then our vision evolved towards the surrounding world [...] the company had fully new expectations...” - **Production manager**

In addition, the case members learned about modern marketing systems and new professional communication with their customers, such as physicians. In this regard, the business manager of the case pointed out:

“...the licensor held seminars where super qualified physicians from all over the world attended, during this kinds of seminars we learned modern marketing systems. They [the licensor’s people] taught us how to interact [...] and how to communicate professionally with physicians and other customers ...”

Furthermore, respondents stated several events had taken place due to licensing that had an influential effect on the firm’s RIC. These events included defining a new, specific process to support new business relations for launching newly licensed products, as well as being familiar with new patterns and tools utilized by the licensor such as pharmaceutical due diligence, which are exploited to analyze BPs. In this respect, the marketing manager of the case believed:

“...we were going to launch very expensive pharmaceutical products (licensed products) on the market [...] we had to develop new business relations [...] thus, we needed to define specific processes [...] we understood that the concept of pharmaceutical due diligence was an unfamiliar concept for us...”

4.5.1.2 Relationship development capability (RDC) - Case A

According to the data collected, in Case A company, respondents provided different reasons to show the IIL impact on sub-components of relationship development capability. For example, respondents in this case stated that in order to meet the licensor’s requirements and standards, new SOPs should be written. New SOPs bring new interaction behavior with business partners (BPs). Moreover, intra-firm relationship development and attaining teamwork ability are the outcomes of SOP writing because employees from different departments are involved. The project manager mentioned:

“...we developed new standard operational procedures (SOPs) in the company. They [SOPs] create new roles and responsibilities. Based on new SOPs, we need to change our behavior. New SOPs bring new behaviors [...] we changed the type of the controls due to new SOPs; accordingly, logistic behavior must change [...] teamwork results in better development and formulation of SOPs so that all employees of the company become more qualified and capable...”

In line with the above impact of IIL, members of Case A in relation to LSE1 have been familiar with new technical tools such as user requirement specifications (URSSs), by which they have professionally interacted with their suppliers. In other words, using this technique they can communicate with BPs technically. The technical manager said:

“...Before licensing the types of our demands were limited and it was just based on catalogs, but after licensing it has been extensively changed and we have been fully professional and skillful; today not only do we not buy based on catalogs, but we also purchase based on user requirement specifications (URSSs) [...] URSSs changed our interaction procedure; we behave more strongly in business relations with suppliers...”

Based on the respondents' words, the collaboration of this case company and LSE1 resulted in an emerging new interaction style with customers, the Ministry of Health (MOH) and other BPs. With respect to this new style, the case company has established new systems such as intelligent voice response (IVR). The production manager emphasized:

“...our interaction style with customers, the environment, the Ministry of Health (MOH) and suppliers evolved. It became more professional than before [...] even our vision scope changed; we assumed that our customers are not just physicians or pharmacies; as a licensee, we understood that we must focus on the end consumer (patient) as well. Then the company established intelligent voice response (IVR) systems...”

Furthermore, licensing focused on all things in detail, including interaction and communication style with the firm's BPs. The business manager pointed out:

“...The licensor focused on the all things in detail including [...] our behaviors and styles of communications with customers and business relations...”

Due to IIL, the nature of communications and business relations at the company has significantly changed. Even the company meets some requirements more than those expected by MOH and other BPs. The production manager reported:

“...IIL changed the nature of the communication and business relations of the company...the company tried to meet some requirements more than those expected by authorities at the Ministry of Health [...] arranged meetings with distribution companies more frequently; we knew what their needs and requirements were...”

In this case company, the personnel were familiar with new pharmaceutical due diligence (PDD) techniques to fulfill analyzed gaps in relation with BPs. The CEO said:

“...we learned the technique of gap analysis as well as the technique of fulfilling this gap, namely pharmaceutical due diligence [PDD]. If our partners could not meet our needs and requirements based on due diligence factors, we announced them. Whenever you meet our needs we can cooperate together. In other words, there was a precondition for how do they satisfy our needs and expectations; if the partner was competent and capable, we welcomed business cooperation. Or else it was impossible...”

Moreover, during the years of collaboration experience with LSE1, this SME learned effective requirements to codify business contracts to prevent likely future conflicts. The project development manager noted:

“...legal potencies and capabilities of the company evolved [...] we learned from the licensor some effective requirements for codification of contracts [...] codification of lawful contracts to prevent eventual conflicts in the future...”

4.5.1 Networking capability (NC) - Case B

As was previously noted, Case B has been involved in international business through its licensing alliance with LSE2. In the next section, the collected data associated with the impact of IIL on the NC of Case B are presented. With the exception of relationship termination capability (RTC), the other two dimensions of NC have been enhanced by IIL.

4.5.1.1 Relationship initiation capability (RIC) - Case B

The respondents of Case B stated that the company's RIC has been influenced through working with LSE2 as a multinational licensor. This firm recruited qualified, potent and skillful experts. These newly recruited employees have played a critical role to identify and evaluate new BPs. All respondents of this case believe that the firm's brand became more popular among foreign pharmaceutical companies after obtaining a world-class license. This new reputation in the market has been a powerful force to attract newly identified BPs. The CEO of the case pointed out:

"...the license motivated us to recruit new employees, therefore the level of our people's skills changed and we developed some techniques for better working [...] our brand became more popular among foreign pharmaceutical companies and networks; new business relations took place and some physicians, as well as scientific communities associated with business companies, developed their relations with us... "

In addition, the licensee has been familiar with new techniques to prepare specifications and indicators to impress BPs along with learned negotiation techniques. A member of the board reported:

"...working with a powerful multinational licensor lead to recruiting qualified, potent and skillful experts [...] we learned how to prepare specifications; we know the needed quality level of the raw material. We know negotiation techniques; we know that specifications and indicators impress our business partners. Our company is more intellectual than before..."

Furthermore, upgraded standards during the licensing process also attracted new foreign partners to develop their relations with the firm. The production manager of the case recalled:

"...other foreign companies would like to develop business relation with us, because our standards were upgraded..."

4.5.1.2 Relationship development capability (RDC) - Case B

The managers of Case B stated that sub-components of relationship development capability (RDC) have also been influenced by IIL obtained from LSE2. For instance, the licensor's

continually monitoring resulted in considerable change; even very detailed issues, technical capability and documentation ability were promoted. As the CEO of the case stated:

“...we continually were under the licensor’s monitoring [...] everything was changed, even very detailed issues [...] our technical potency and capabilities were highly promoted [...] our documentation ability was promoted more intensively...”

Due to IIL, the approach of the case associated with marketing, business relations and communications with customers has been modified. Moreover, utilizing proficiency-based marketing and new patterns obtained from the licensor to communicate with physicians in a new way is another issue that was stated by the managers. The marketing manager confirmed:

“...we modified our approach to the marketing, business relations as well as communications with customers [...] we developed proficiency-based marketing [...] physicians knew that our system was properly based on a high-quality approach [...] our communication approach with physicians switched to licensor’s patterns, we communicated with them differently [...] customers trusted more...”

In this case, due to the use of international business-marketing consultants introduced by the licensor, the firm has been more aware of its BPs’ needs. In line with this influential impact, working with the licensor has modified the firm’s IT infrastructure as well as made it familiar with new tools of communication. A member of the board said:

“...working with a powerful multinational licensor led to recruiting qualified, potent and skillful experts for the company [...] there are some recruited international business marketing consultants [...] naturally, we try to be more aware on our business partner’s needs. [...] IT infrastructure was modified and we are familiar with modern communication tools...”

It should be added that people’s motivation to skillfully recognize the BPs’ needs is changed due to licensing. The business manager believed:

“...the license has changed our motivation; our interaction with business partners changed too. It induced us to invest more on cognition of their needs...”

Modern SOP writing and the licensor's audits empowered the firm's internal communication ability and teamwork skills. In this regard, the following quotations were stated by the respondents:

"...modern SOP writing and new audits increase the ability and potency of teamwork..." - Production manager

"...teamwork is the nucleus of documentation. Audits and periodical tests need documentation..." - Marketing manager

During IIL, employees of the case firm learned to negotiate technically, lawfully, and using techniques of persuasion, as well as to enact international contracts professionally, this was effective in decreasing possible conflicts. The CEO stated:

"...we knew how to enact international contracts [...] we learned techniques of persuasion [...] how to negotiate technically and lawfully, we fully evolved, we had we even acted as a lawyer..."

4.5.2 Networking capability (NC) - Case C

This case company obtained several generic licensed products from LSE3. The relationship initiation capability (RIC) and relationship development capability (RDC), as the two main networking factors (NFs), have been influenced during the collaboration of Case C and LSE3. Associated data collected from this case are provided as follows. However, empirical data did not provide evidence about relationship termination capability (RTC).

4.5.2.1 Relationship initiation capability (RIC) - Case C

Given to the respondents' words, the firm's ability to select and attract new BPs has been influenced through the following events. First, interviewees in this case stated that the employees' vision and business attitude have developed through obtaining new knowledge during the licensing process. They can identify the firm's needs better than ever. A member of the board pointed out:

"...new technical capability resulted in obtainment of knowledge by the organization. Knowledge develops attitude and vision of the personnel, and they can identify their needs better than ever [...] employees of the company learned marketing techniques..."

Second, the licensor introduced screening techniques along with associated indices to evaluate new and existing partners. The marketing manager mentioned:

“...we learned how to screen the business partners; some indices were needed for screening, but we obtained them from our licensors...”

Third, licensee-licensor cooperation to perform market research resulted in finding new, rich marketing knowledge to identify new opportunities, as explained by the commercial manager of the case:

“...market research will be done through cooperation of the licensor and licensee, thus, the licensor’s rich marketing knowledge helps us to identify new opportunities...”

Fourth, entering into new world-class business relationships with a well-known global LSE has generated a positive and reliable image for other BPs. For instance, the firm’s licensing project manager commented:

“...our company has entered into a new business trajectory and it has been more world-class; therefore, many new proposals are suggested to us from other business partners...”

4.5.2.2 Relationship development capability (RDC) - Case C

According to the managers’ beliefs, in this company relationship development capability (RDC) can be influenced through the licensing alliance between the company and its global partner (LSE3). In this respect, the majority of respondents stated that to implement the license project, it is essential that managers of the licensee promote their skills and proficiencies to effectively communicate with different BPs. A member of the board recalled:

“...managers of the company had to promote their skills and proficiencies to communicate with business partners [...] the license is a helpful tool to attain such kinds of knowledge...”

The licensing alliance has been a helpful tool for this case company to attain different kinds of abilities and knowledge which, in turn, influence inter-firm relationships, as a commercial manager of the company noted:

“...Communication with multinational licensors teaches us how to penetrate markets; how to make the right contracts, improve quality, respect the consumer’s expectations, and enact contracts...”

Moreover, respondents believed that a combination of negotiating techniques and product knowledge obtained from the licensor creates different abilities for the company. The CEO of the case company pointed out:

“...we can negotiate better and we can conceive our business partners better than ever; a combination of negotiating techniques and product knowledge creates different abilities for our people. Physicians are our customers in the pharmaceutical industry, and we interact with them as more self-confident business partners, concerning the products [...] our people’s knowledge enhanced [...] the minister of health (MOH) knows our company as a knowledgeable organization ...”

The licensor’s continual auditing process resulted in modifying interactions between the firm and its BPs. Furthermore, the element of internal communication as a sub-component of NFs was developed by two events, SOP writing and joint execution, during the licensing alliance. New SOP writing and joint execution of licensing involves various departments and functions within the firm. A member of the board in this case company reported:

“...a continual auditing process in a company results in interaction modification; we need to update all SOPs, the nature of SOP writing is based on teamwork [...] each activity should have its own SOPs. To do this, organizational internal relations should be modified toward teamwork-based behaviors. When you have to write a large volume of new SOPs, relations of the organization must firstly have been modified to pass successful auditing. Different departments should cooperate together, such as the QA [quality assurance] department, production, marketing, technical, the R&D department etc...”

In terms of conflict management, empirical findings do not provide considerable evidence.

4.5.3 Networking capability (NC) - Case D

At the same time, this case company has been involved with the two global licensors LSE2 and LSE4. The collected data show the influential effect of IIL on NC’s dimensions in Case D.

4.5.3.1 Relationship initiation capability (RIC) - Case D

In Case D, selection and attraction of business partners (BPs) as sub-components of relational initiation capability (RDC) have been influenced due to IIL. Respondents pointed out the following reasons that point to this influential effect. First, to produce new and complicated licensed products, it is essential to be adapted with the licensors' standards and conditions. On this basis, the firm's people were trained and attained the same level of the licensor's advanced standards and world-class qualifications. The CEO of the case stated:

"...you have to adapt yourself with terms and conditions as well as standards of the licensor [...] your people must be trained and attain the same level of the licensor's standards..."

Furthermore, it is important to attain the licensor's modern marketing know-how and techniques to analyze the market and find the right BPs. The marketing manager reported:

"...the licensor teaches us marketing techniques that they have learned in different foreign countries, and we utilize the knowledge and marketing techniques in export..."

Second, the licensor entered the firm in a new business network and opened a new pharmaceutical world to the company. In this regard, members of the company have been familiar with new products, technology, diversified knowledge, and pipelines. The commercial manager said:

"...communication with the licensor made us know more about developing products and new product pipelines, and we became familiar with new forms of pharmaceutical products as a very valuable opportunity; also, through a close relationship with the licensor we became familiar with future trends of the treatment of thrombosis..."

Third, there was a utilization of new and different models, patterns and standards for evaluation of suppliers and distributors learned from the licensors. The CEO stated:

"...we learned from the licensor to utilize different models, patterns and standards for evaluation of distributors, our suppliers. The licensor produced 100mg drugs while our customer had to use four pieces a day; we decided to meet the customer's requirements and produced a form of 400mg to respect more customers' satisfaction..."

Fourth, new business partners welcomed the firm based on the new reputation created in the company because of interaction with well-known and world-class licensors. According to the R&D manager:

“...pharmaceutical companies changed their behaviors towards us and we are more trustworthy now. Potential suppliers welcome us at the present. All of these opportunities came based on the new reputation created for our company because of interaction with the licensor...”

Fifth, affecting physicians’ communities and experts based on new communication techniques learned in relations with licensor is important.

“...it is hard to convince experts and physicians in some respects [...] types of communication have been changed and we affected the physicians’ community...”

Furthermore, cooperation with multinational licensors per se attracted physicians as the main customers of the company because of the production of very high-quality and reliable products. In line with this fact, the R&D manager recalled:

“...when physicians as our main customers see we are producing very high-quality products in cooperation with highly-reputable multinational licensors, then they believe us, our created brands are meaningful; physicians are ensured that we are a highly-trustful and authentic business partner...”

4.5.3.2 Relationship development capability (RDC) - Case D

Respondents from this case stated that several core elements of relationship development capability (RDC) have been enhanced in relation with large multinational licensors.

Utilizing the licensor’s different models, patterns and standards for evaluation, distributors and suppliers have enabled the company to manage and develop its relationships more professionally.

All interviewed managers stated that in order to be a suitable licensee for LSE2 and LSE4, both licensors checked the firm’s commercial process, purchase resources, and trustworthy suppliers to be ensure the firm’s qualifications to reject or expand business relationships with the right suppliers. In this respect, the CEO said:

“...cooperation with the licensor improved our business value chain; the licensor was checking our commercial process, purchase resources, trustworthy suppliers, and so forth; it was intended to ensure that we were qualified, and capable enough to reject the supplier or expand the business cooperation with the right suppliers [...] they wanted us to report reviewed corrective actions due to auditing. The licensor audited our CRM and we had to make the documents available for them to check...”

Specifically, to evaluate the distributors' quality and standards, the firm used new tools introduced by the licensors. For example, the marketing manager recalled:

“...The licensor introduced and equipped us with some new tools to evaluate our distributors' quality and standards. We executed a monitoring process to find our business partners strengths and weaknesses...”

In addition, licensors focused on the firm's internal and external marketing ability through relevant education and practice. The marketing manager believed:

“...internal and external marketing targeted by the licensor through relevant education and actions [...] we learned when and how to provide and present our documents to our business partners...”

This case company has established a new documentation system based on high-level standards of GMP due to cooperating with world-class licensors.

“...we are cooperating with a licensor that is among the top five eminent companies in the world. We have decided to attain a GMP certificate from Europe. We hired some European consultants to prepare our standards and documentation system based on European standards...”

As the respondents stated, employees learned how to describe their company's products. Furthermore, they learned when and how to provide and present documents to the firm's BPs. The marketing manager continued:

“...the license made us more professional. There are some rules and you must learn them to know how you must act as a professional expert. Our interaction behavior was very different towards the business partners after licensing; we learned when and how to provide and present

our documents to our business partners [...] our marketing personnel learned how to describe our pharmaceutical products for our main customers using scientific language and literature [...] these activities increase the level of the company's intelligence..."

Being familiar with new analytical techniques and tools during the licensing process has increased the firm's ability to manage and develop its relationships with BPs. The R&D manager explained:

"...we can analyze them (customers) better; we have been equipped with new analytical techniques by the licensor during the process of licensing..."

It is also should be noted that licensors forced Case D to define supportive processes within the company to control produced products after the distribution stage. Years working with very skillful multinational partners led to development of a modern IT infrastructure to facilitate communication based on the licensor's conditions. The CEO of the case company said:

"...the licensor taught us many techniques; SharePoint was one of them [...] licensing evolved the infrastructure of IT [...] IT links all departments and people of the company to each other. Knowledge and information are shared by them through this system. In other words, information is regularly accessible for relevant people and departments ..."

Through this long collaboration, managers of Case D found a new managerial approach to support internal communications and knowledge between people and departments. All managers strongly believed that the ability to write SOPs developed through the licensing alliance, and it has been an effective vehicle to develop internal communication. In this regard, the R&D manager commented:

"...The licensor's audits have their effects [...] SOP development promotes teamwork quality because heads of various departments sign them; therefore, all of them will be involved in the given processes..."

4.5.3.3 Relationship termination capability (RTC) - Case D

This case firm has obtained some techniques to terminate its relationships with those suppliers which do not meet the necessary requirements. The following quote from the firm's CEO confirms this reality:

“...Cooperation with the licensor improved our business value chain; the licensor was checking our commercial process, purchase resources, trustworthy suppliers, and so forth; the licensor was intending to ensure that we were qualified and capable enough to reject the supplier or expand the business cooperation with the right suppliers...”

4.6 Networking capability findings

In the previous sections, the data associated with relationship initiation capability (RIC), relationship development capability (RDC), and relationship termination capability (RTC) were presented for all of the cases. In order to draw a complete picture from the presented data, in this section, for each component of the networking factors (NFs) the relevant summarized data as findings of the cases are presented. These summarized data, which facilitate easy case analysis for the studied cases, are illustrated in **Table 10**. In this table, several abbreviations are used with the following meanings: business partners (BPs), ministry of health (MOH), user requirement specifications (URs), pharmaceutical due diligence (PDD), standard operational procedures (SOPs), and intelligent voice response (IVR).

Table 10: Cases findings derived from interviews related to networking capability

NFs	Case A	Case B
RIC	<ul style="list-style-type: none"> - New business insight to recognize new opportunities and new attractive BPs - Organized training courses held by licensor to improve qualification and skills of firm’s employees. - Specific marketing training provided by licensor to learn how to communicate professionally with physicians - Learning new communication skills (e.g., English language and negotiation) to convince firm’s BPs. - Defining new, specific process to support new business relations for launching newly licensed products based on licensor’s requirements. - Being familiar with completely new patterns and tools utilized by licensor, such as pharmaceutical due diligence which are exploited to analyze BPs. 	<ul style="list-style-type: none"> - Recruiting qualified and skillful experts to identify and evaluate new BPs - Getting well-known and popular brand recognition due to licensing resulted in attracting new BPs. - Being familiar with new techniques to prepare specifications and indicators resulted in impressing BPs - Learning negotiation techniques resulted in influencing BPs - Upgraded standards during licensing process attracted new foreign partners
	RDC	<ul style="list-style-type: none"> - New SOPs bring new interaction behavior with BPs - Intra-firm relationship development and attaining teamwork ability due to SOP writing forced by IIL - Being familiar with new technical tools (e.g., URSs) to interact professionally and technically with suppliers - Emerging new interaction style with BPs (e.g., customers and MOH) - Getting new nature of communications and business relations of the company - Due to IIL, the company meets some requirements more than those expected by BPs (e.g., MOH) - Establishing new systems such as IVR learned from licensor to focus on end consumers - People have been familiar with new techniques of PDD to fulfill analyzed gaps in relation with BPs - Learning effective requirements to codify business contracts to prevent likely future conflicts
RTC		No findings

Table 10: Cont.

	Case C	Case D
RTC	<ul style="list-style-type: none"> - Employees' vision and business attitude have developed through obtaining new knowledge during the licensing process, led to identifying firm's needs better - Licensor introduced screening techniques along with associated indices to evaluate existing and new partners - New market research, marketing techniques and knowledge, learned from licensor, are used to identify new opportunities - Entering into new world-class business relationships with a well-known global LSE through IIL has generated a positive and reliable image for other BPs 	<ul style="list-style-type: none"> - Being adapted with licensors' standards and conditions to produce new complicated licensed products - Training to attain the same level of licensors' advance standards and world-class qualification - Getting licensor's modern marketing know-how and techniques to analyze the market and find right BPs. - Entering into new business network through licensors and being familiar with new products, technology, diversified knowledge, and pipelines (new opportunities) - Utilizing new different models, patterns and standards for evaluation of suppliers and distributors learned from licensors - Getting well-known reputation because of interaction with well-known and world class licensors, consequently finding the ability to attract BPs - Affecting physician communities and experts based on new communication techniques learned in relations with licensor - Producing very high-quality and reliable products (obtained from two multinational licensors) attracted physicians as the main customers of the company
RDC	<ul style="list-style-type: none"> - Promoting managers' skills and proficiencies to communicate with different BPs effectively forced by licensing project implementation - People's new interaction ability due to obtaining a combination of negotiating techniques and product knowledge from licensor - Licensor's auditing process and SOP writing resulted to modify firm's internal communication and inter-firm interactions with BPs. - Cross-functional relationship enhancement due to joint execution of licensing 	<ul style="list-style-type: none"> - Utilizing licensor's different models, patterns and standards to evaluate BPs (e.g., distributors and suppliers) enabled the firm to develop its relationships professionally - Finding new qualifications to evaluate its BPs commercial process, purchase resources, and trustworthy suppliers based on learned specifications (e.g., standards, quality) introduced and applied by two licensors - Being familiar with new internal and external marketing ability through relevant training and practices - Applying new documentation system based on licensors' requirements - New ability of the marketing personnel to make documented-based relationships with firm's BPs (e.g., physicians, customers and MOH) - Using new analytical techniques and tools learned from licensors to manage and develop its business relationships with BPs. - Defining a new supportive processes within the company to control produced product after distribution stage forced by licensors - Establishing IT infrastructure to facilitate communication based on licensors conditions. - Managers' new approach to support internal communications and knowledge sharing between people and departments. - Empowering teamworking and cross-functional relationships due to SOP writing
RTC	No findings	<ul style="list-style-type: none"> - Using new techniques to terminate relationships with unqualified BPs (e.g., suppliers)

5 Analysis

This chapter analyzes the findings from the case studies presented in the previous chapter. The relevant discussion is presented based on the theoretical frameworks discussed in Chapter 2. The chapter starts with a discussion about the impacts of IIL on ACAP, and ends with the associated discussion about the impacts of IIL on SMEs' NC.

5.1 The impacts of IIL on ACAP

According to the results of the ACAP summarized in **Table 9**, it is evident that IIL in all four SMEs had a positive effect on four components of absorptive factors. The findings show that the absorptive factors (AFs) of acquisition, assimilation, transformation and exploitation of the firms have been influenced by IIL through impact on ACAP's various antecedents. This claim is argued in different sections as follows.

5.1.1 Human resources (HR)

A close look at the results of AFs (see **Table 9**) in this study reveals that human resources (HR) had a central role and effect on all AFs. For instance, in Case A the acquisition capability is enhanced because the firm's employees have found "new business insight" and new experiences due to implementing IIL projects as well as training programs provided by licensor. In Case B, acquisition capability is enhanced through recruiting skillful employees (e.g., a marketer) and learning communication skills (e.g., language and negotiation). In line with this reality, in Cases D and C, the assimilation capability is enhanced by training and new experiences. This capability in Case B is also enhanced by recruiting knowledgeable people such as physicians.

Furthermore, assimilation capability in Case A has been improved because of several reasons associated with the employees, such as finding a new interpretation philosophy, training courses provided by licensor, and visiting the licensor's sites. This capability in Case B is empowered by recruiting physicians and by the licensor's effective training. For Case C, assimilation capability is enhanced due to new technical skills, qualifications and experience, whereas in Case D it has been enhanced by HR's new business and technical insight created by new rules (e.g, GMP, GLP, GDP and GDP) applied by the licensors.

Another influenced capability is transformation; it has been enhanced by peoples' new skills to develop SOPs (Case C), training to attain the same level as the licensor's standards (Case D), learning new skills such as documenting, knowledge maintaining, and teamworking (Case B), and through learning new skills of knowledge protecting, routine development and SOP writing (Case A).

Analysis of the data from the four case studies indicates that exploitation capability in all SMEs is enhanced by HR, which is influenced through IIL. For instance, in Case A, learning technical negotiation skills and recruiting new skillful people (e.g., engineers) due to IIL are two issues that led to exploitation capability enhancement. In Case B, it was training and recruiting, and in Case C, people's new risk-taking created after licensing were important issues that enhanced exploitation. Finally, in Case D, exploitation was enhanced through learning new technical skills due to executing complicated licensing projects.

Carefully looking at the above results associated with HR indicates that in all SMEs, due to IIL projects, HR has been empowered through two ways, "**learning**" and "**recruiting**" (Cohen and Levinthal, 1990).

First, learning itself has happened in two ways: learning by training (e.g., courses) and learning by doing (e.g., working with new tools and equipment). These two kinds of learning, the firm's key people have found new insight, approach, mindset, business philosophy and perception along with various new skills and competencies. Even this learning has created a new motivation for licensees' employees (Minbaeva and Pedersen, 2003).

Second, to execute the IIL project, the SMEs recruited new skillful employees such as physicians, engineers, marketers, and other experts as illustrated in **Table 9**. In this regard, all SMEs have entered a new level of organizational capability. Accordingly, based on acquisition findings, after IIL the employees of all the cases were empowered to scan, explore, identify and collect the external knowledge and technologies with a completely different enhanced ability. Similarly, newly developed human resources have intensively influenced assimilation, transformation and exploitation capabilities as other components of the absorptive factors (AFs) in the studied cases. These facts confirm the studies of Cohen and Levinthal (1990), Szulanski (1996), Lane et al. (2006), Lewin et al. (Lewin et al., 2010), and Zahra and George (2002), who found that skillful people play an important role in developing the firm's AFs. Therefore, in all

SMEs, HR has been positively influenced by IIL; this factor, in turn, has enhanced the SMEs' AFs. Consequently, this has resulted in Proposition 1.

Proposition 1: The SMEs' absorptive factors (AFs) are enhanced by the positive impact of inward international licensing (IIL) on their human resources (HR).

5.1.2 Inter-firm relationships

The second significant piece of evidence is the impact of IIL on inter-firm relationships as another antecedent of AFs. The empirical study (see **Table 9**) indicates that through IIL, the studied SMEs have connected to new business partners, international relations and networks (Volberda et al., 2010). For example, in Case A, acquisition capability has been influenced by new communications. This capability has been empowered in Case B by learning new communication skills (e.g., language and negotiation techniques). Similarly, in Case C, the acquisition capability is enhanced through finding new international communications, while in Case D, it is influenced by connecting to new business partners as sources of the new opportunities due to IIL. In line with these findings, exploitation capability is influenced through different events; for example, in Case A, it occurs by establishing new relationships with scientific communities, whereas in Cases B and D, it is influenced by developing business relations and communication with universities.

Moreover, licensees have obtained new marketing capabilities (Cases A and D), negotiation skills (Cases A and B) and well-known reputation (Cases A, B and D), which act as effective tools to access new external resources, knowledge and technologies. All these forms of relationships are relevant components of inter-firm relationships which have been enhanced by IIL. In their various studies, Todorova and Durisin (2007), Zahra and George (2002), Cohen and Levinthal (1990), Walter et al. (2006), and Volberda et al. (2010) claim that inter-firm relationships are drivers of AFs. The findings, however, show (see **Table 9**) empowered inter-firm relationships through IIL only enhance two components of AFs, namely acquisition and exploitation. Thus, the following proposition can be concluded:

Proposition 2: The SMEs' acquisition and exploitation capabilities, as two components of absorptive factors (AFs), are enhanced by the positive impact of inward international licensing (IIL) on their inter-firm relationships.

5.1.3 Intra-firm relationships

In addition, the empirical results indicate that licensors' conditions and audits have strongly empowered different internal social mechanisms in all studied SMEs. Based on the findings summarized in **Table 9**, assimilation and transformation capabilities in all the cases have been enhanced, however in different forms. For instance, in all the cases, assimilation capability is enhanced by forming a type of teamwork with new methods (e.g., brainstorming) because of the licensing project. It is also evident that transformation capability is enhanced in all the cases by developing standard operational procedures (SOPs) forced by licensors. IIL strongly empowers the SMEs' ability to develop SOPs. The ability of SOP writing has been empowered in all cases, as shown in **Table 9**. In this respect, the empirical findings also indicate that teamwork, collaboration, cross-functional meetings, and brainstorming are the core activities to write SOPs which, in turn, all facilitate internal communication (Jansen et al., 2005; Volberda et al., 2010). Furthermore, internal communications (Cohen and Levinthal, 1990) has been developed by enabled IT infrastructures for Cases D and C.

Overall, these factors are characteristics of intra-firm relationships (see **Table 4**) which mostly have influenced AFs. Therefore, it is clear that intra-firm relationships as an effective AFs driver has been enhanced in all cases. These results are also consistent with the findings of Volberda et al. (2010), Lewin et al. (2010), Todorova and Durisin (2007), Zahra and George (2002), Lane et al. (2006), Cohen and Levinthal (1990) and Van den Bosch et al. (1999), who highlight intra-firm relationships as an influential antecedent of AFs. Given this, the following proposition is suggested:

Proposition 3: The SMEs' assimilation and transformation capabilities as two components of absorptive factors (AFs) are enhanced by the positive impact of inward international licensing (IIL) on their intra-firm relationships.

5.1.4 Internal knowledge

As is evident from **Table 9**, the studied pharmaceutical SMEs have obtained a wide range of diversified knowledge and technologies through licensing packages (Welch, 1985), both at individual and firm level.

The empirical investigation suggests that AFs in all SMEs have been enhanced through the firms' internal knowledge improvement by IIL, however in different forms.

First, acquisition capability in Case A is enhanced by obtaining new business tools such as user requirement specifications (URSs) and new technical knowledge; in Case B, it has been improved through obtaining new knowledge, equipment, and technology; in Case C, by obtaining new knowledge and information; and finally, in Case D, through accessing new marketing know-how.

Second, assimilation capability is enhanced by being familiar with new technical aspects (e.g., pharmaceutical due diligence): in Case A, through new specifications and indicators learned from the licensor; in Case B, by applying new technology and new screening techniques; and in Cases C and D, by obtaining new advanced technology for production lines, quality etc.

Third, transformation in all the cases has been enhanced by using new knowledge, standards, and SOP development techniques to code, record and store knowledge (Jansen et al., 2005) regarding the licenses. Moreover, this capability is also enhanced by obtaining knowledge of documentation and routines (Case C); using the licensors' extra GMP rules and knowledge (Cases D and B); and by learning new knowledge as well as skills of routine development (Case A).

Fourth, the findings of the case analysis reveal that exploitation capability has been enhanced through access to new technical capabilities, technical knowledge and equipment (Case A); getting new technical capability (Case B); and obtaining diversified knowledge (both in scope and depth) and technology from the two licensors, as well as getting new technical capability (e.g., pharmacy engineering, designing, process improvements) (Case D). However, as **Table 9** shows, no empirical evidence indicates significant impact of IIL on the exploitation capability of Case C. In this respect, the following possible reasons behind this difference can be considered. First, as **Table 9** shows, in Case C the type of licensing technology is generic rather than off-patent. The second reason can be related to the size of this case (seven employees before licensing).

Accordingly, these findings confirm that the SMEs' AFs during the IIL project have been enhanced for the reason that their internal knowledge accumulation in various areas (e.g.,

technical, managerial and commercial) has been improved. These outcomes are also consistent with the findings of Lane et al. (2006) and Volberda et al. (2010), who highlight the importance of the role of prior knowledge, experience, and scope of knowledge as antecedents of AFs. Consequently, based on this argument the following proposition is suggested:

Proposition 4: The SMEs' absorptive factors (AFs) are enhanced by the positive impact of inward international licensing (IIL) on their internal knowledge.

5.1.5 Managerial and strategic aspects

The results illustrated in **Table 9** also reveal that in all the cases, IIL has motivated managers of the firms to support R&D's investment strategies to facilitate obtaining and exploiting external knowledge. These results are in line with the previous literature (Cohen and Levinthal, 1990), which had already supported the importance of R&D activities to develop the ACAP of the firm. In other words, R&D plays a positive role to foster all absorptive factors in the firm. Furthermore, empirical evidence provided by the multiple case studies suggests that in Cases A and D, assimilation and transformation capabilities are enhanced by forming new managerial insight about the knowledge and knowledge sharing strategy due to the licensing alliance. It is also important to note that the findings highlight the reality that managers have found a new cognition and have shifted into new business insight and philosophy (Flatten et al., 2011a; Lane et al., 2006; Volberda et al., 2010). This new managerial position has created a significant supporting strategy and role to enhance AFs. Thus, a new proposition is developed as follows:

Proposition 5: The SMEs' absorptive factors (AFs) are enhanced by the positive impact of inward international licensing (IIL) on their managerial and strategy aspects.

A close look at the five propositions above shows that influenced contextual factors (CFs), including managerial and strategy aspects, HR, and internal knowledge, had enhanced all components of AFs. Inter-firm relationships and intra-firm relationships are two other influenced CFs which only enhanced two components of AFs, as visualized in **Table 11**. In this respect, these differences might be explained by the following reasons. First, when it comes to acquisition and exploitation capabilities, exchanging of the external resources (e.g., knowledge and information) are more important; therefore, inter-firm relationships will be, in turn, more

relevant. In contrast, for assimilation and transformation, internal exchanging of the information and knowledge will be more important, and thus internal communication mechanisms will be more applicable. In other words, a combination of inter and intra-firm relationships influences AFs.

Table 11: Enhanced absorptive factors (AF) by CFs

CFs	AFs influenced by CFs			
	Acquisition	Assimilation	Transformation	Exploitation
HR	√	√	√	√
Internal knowledge	√	√	√	√
Managerial and strategic aspects	√	√	√	√
Inter-firm relationships	√			√
Intra-firm relationships		√	√	

Taken together, the suggested propositions above highlight the role of several contextual factors (CFs) as drivers of AFs which have been influenced by IIL in the studied SMEs, as illustrated in **Table 11**. The essence of this analysis is shown in **Figure 8**. This figure is drawn based on an analytical framework developed in Chapter 2 (see **Figure 2**).

Inward international licensing (III)-Embedded-Exclusive

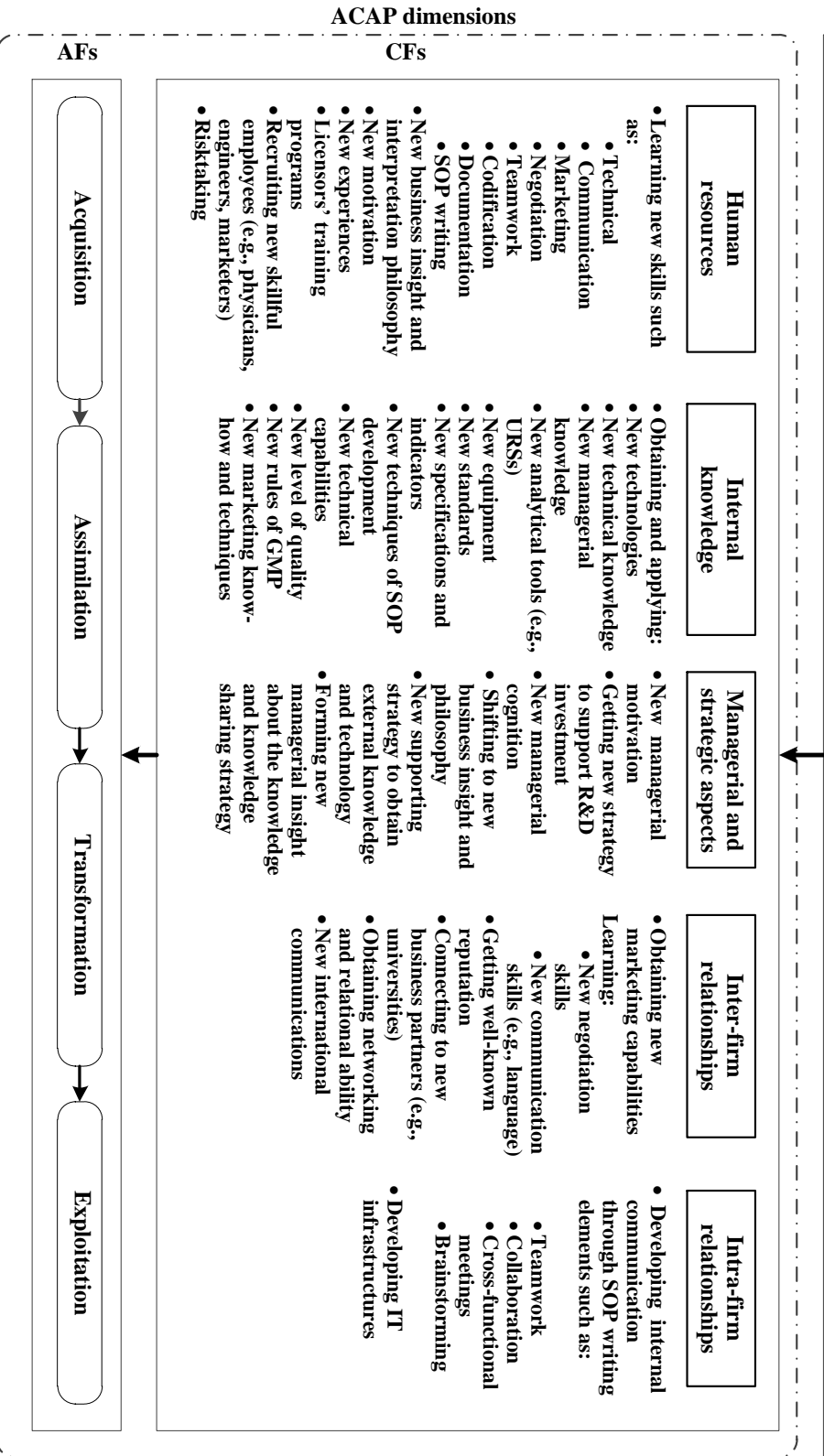


Figure 8: Inward international licensing (III) and its impact on SMES' ACAP.

5.2 The impacts of IIL on NC

Examining the impact of the obtained IIL from global LSEs on NC's dimensions in SMEs (as licensees) was one of the focused problems in this study. Findings of the individual and cross-case analysis (see **Table 10**) reveal that relationship initiation capability (RIC) and relationship development capability (RDC) are two components of NFs (Mitrega et al., 2012) enhanced by IIL in all the studied SMEs. Furthermore, relationship termination capability (RTC) as a third component of NFs has been only enhanced in Case D.

As is evident from **Table 10**, IIL has enhanced networking factors (NFs) components (RIC and RDC) through influencing various contextual factors including human capital, organizational knowledge, cross-functional teams, the firm's resource base, and organizational learning. In the following sections, this claim is discussed based on the relevant findings.

5.2.1 Human capital

The results of this study show the SMEs' human capital is, on various levels, influenced from different aspects by inward international licensing (IIL).

First, the licensees' managers and other key people have found new business insight (or vision) and cognition power. For instance, in Case A, new business insight created by IIL led to the recognition of new opportunities and new attractive BPs (as subcomponents of relational initiation capability (RIC)) in the market. Likewise, in Case C, the employees' vision and business attitude have developed through obtaining new knowledge during the licensing process. This new vision resulted in identifying the needs of the firm better than before licensing.

In other words, due to implementing the IIL project a new business insight emerged for the SMEs' employees, who have found new abilities to recognize new business opportunities. This finding is consistent with the studies of Helfat and Peteraf (2003), who suggested that "cognition of team members may affect the abilities of teams to perform various tasks and to learn from experience".

Second, as the results of the findings reveal (see **Table 10**), employees in all SMEs have acquired various new skills and abilities in such areas as legal, communication, negotiation, marketing, technical etc. For example, in Case D, relationship development capability (RDC) is

enhanced by the new ability of the marketing personnel to build documented relationships with firm's BPs (e.g., physicians, customers and the ministry of health (MOH)). Moreover, in this case relationship initiation capability (RIC) is empowered by people's new skills that affect physicians' communities; it is also empowered by experts, based on new communication techniques learned in relations with the licensor. In line with this influential impact of IIL on human resource skills, in Case C, relationship development capability (RDC) is also enhanced by promoting managers' skills and proficiencies to effectively communicate with different BPs. RDC is further enhanced by the new interaction ability of the firm's employees, due to obtaining a combination of negotiating techniques and product knowledge from the licensor. When it comes to Cases B and A, RDC is enhanced by internal communication and teamwork skills influenced by the licensor's auditing forces and new SOP writing methods. However, in Case B, relationship initiation capability (RIC) has been enhanced through recruiting skillful and expert people to identify and evaluate new BPs. For Case A, due to IIL, RIC is enhanced by gaining new communication skills (e.g., English language and negotiation) to convince the firm's BPs in a professional way.

These new skills have had a significant impact on relationship initiation capability (RIC) and relationship development capability (RDC) as components of NFs. This pattern reflects the findings of Ritter and Gemünden (2003) and Teece et al. (1997), who point out that skills play a central role in capabilities development.

Third, as **Table 10** illustrates, RIC and RDC enhancement takes place in the different studied cases through the licensors' training programs in different areas such as marketing, communication, negotiation, SOP writing techniques, working with new equipment, and technical training. For example, in Case A, RIC is enhanced by organized training courses held by the licensor to improve qualifications and skills of the firm's employees; in this case, specific marketing training had been provided by the licensor to communicate professionally with physicians (as influential stakeholders of the case). In Case D, on the other hand, RIC is developed by training to meet the licensors' advanced standards and world-class qualifications. In Case D, relationship development capability (RDC) also is enhanced by training people to be familiar with new internal and external marketing abilities.

On this basis, the licensees' employees have been empowered and their new ability had a substantial influence on various components of networking factors (NFs). These findings are in line with the results of Adner and Helfat (2003), who believe that education and training have effective impact on the enhancement of dynamic capabilities.

Fourth, the findings also show that in order to implement licensing projects, SMEs (e.g., Cases B and D) have recruited skillful new people such as engineers, marketers, physicians and other technical experts. Furthermore, some SMEs, through entering licensors' business networks, have access to new skillful and professional human capital. For instance, in Case B, using international business-marketing consultants introduced by the licensor resulted in a better awareness of the BPs' needs. Therefore, these findings indicate that due to IIL, SMEs have found new skillful human capital to be an influential force to enhance initiation development capability (RIC) and relationship development capability (RTC). These facts confirm the studies of McKelvie and Davidsson (2009), who conclude that new capacity of skillful human capital is a critical driver to modify and develop the firm's different capabilities.

Taken together, in all the studied SMEs, relationship initiation capability (RIC) and relationship development capability (RDC) are enhanced by human capital who themselves influenced through IIL. However, as **Table 10** shows, there are no findings for relationship termination capability (RTC) enhancement. Consequently, based on this argument the following proposition can be advanced:

Proposition A: The SMEs' relationship initiation capability (RIC) and relationship development capability (RDC) are enhanced by the positive impact of inward international licensing (IIL) on their human capital.

5.2.2 Organizational knowledge

Analysis of data from the four case studies (shown in **Table 10**) highlights the critical role played by organizational knowledge to enhance SMEs' NC. Through IIL, the level of organizational knowledge in licensees has entered a new trajectory. In all studied SMEs, organizational knowledge has been enhanced in different forms due to IIL. In line with this consideration, in Case A, relationship initiation capability (RIC) is enhanced by defining new, specific processes to support new business relations for launching newly licensed products on the

market. These new processes were developed based on the licensor's requirements. In addition, this case has been familiar, with completely new patterns and tools provided by the licensor (e.g., pharmaceutical due diligence (PDD)) to analyze BPs. It is also important to note that relationship development capability (RDC) in Case A is enhanced because of being familiar with new technical tools such as user requirement specifications (URSs) to interact professionally and technically with suppliers.

The findings associated with Case B indicate that relationship initiation capability (RIC) is enhanced by upgraded standards during the licensing process. This new knowledge about standards led to the attraction of new foreign partners. In this case, relationship development capability (RDC) has also been improved through utilizing proficiency-based marketing, obtained from the licensor, to communicate with physicians differently.

As **Table 10** depicts, in Case C, relationship initiation capability (RIC) has been developed by obtaining new marketing techniques and knowledge from the licensor to identify new opportunities. In this case, RIC is also enhanced through access to screening techniques, along with associated indices introduced by the licensor to evaluate new and existing partners. In addition, obtaining a combination of negotiation techniques and product knowledge was another form of enhanced organizational knowledge to improve relationship development capability (RDC) in Case C.

In Case D, as the results show, relationship initiation capability (RIC) is enhanced by using the licensor's modern marketing know-how and techniques to analyze the market and find new BPs. This capability (RIC) also is improved by utilizing new standards for evaluation of suppliers and distributors learned from the licensors. Utilizing the licensor's different models, patterns and standards to evaluate BPs (e.g., distributors and suppliers) improved RDC in Case D. It is important to note that RTC in this case has also been enhanced due to new techniques for terminating relationships with unqualified BPs (e.g., suppliers).

Taken together, new diversified knowledge, techniques and tools in different fields such as marketing, communication, negotiation, and functional knowledge (e.g., quality, production, operations, documentation and legal) have resulted in the management and development of licensees' relationships with their business partners. These findings are consistent with the results of Johnson et al. (2004), who suggested that interactional knowledge such as

communication, negotiation and marketing along with functional knowledge (e.g., quality, operational and technical) play a fundamental role in inter-firm partnering. Accordingly, these findings show that in all the studied SMEs, organizational knowledge has been enhanced by IIL. This new knowledge, in turn, has enhanced RIC and RDC in all the cases. In this respect, the following proposition is suggested:

Proposition B: The SMEs' relationship initiation capability (RIC) and relationship development capability (RDC) are enhanced by the positive impact of inward international licensing (IIL) on their organizational knowledge.

5.2.3 Organizational learning

Another important finding was that IIL had a positive influence on organizational learning. The empirical evidence provided by this study (see **Table 10**) indicates that SMEs have obtained and accumulated new experiences, and that their codification ability has been developed through new writing techniques for standard operating procedures (SOPs) from the licensors. As **Table 10** shows, in all the cases relationship development capability (RDC) is enhanced by the action of SOP writing. In order to build operating routines, all activities, tasks, procedures and operations within the company should be in written form. Based on the finding of this study, this action has taken place through writing the standard operating procedures (SOPs). Codification through teamwork is central for SOP development, which is emphasized by the respondents in this study. This finding confirms the studies of Zollo and Winter (2002), who emphasize that codification is a central element of the learning process.

Licensees have repeated new practices provided by the licensors. In other words, all licensees, through implementing the IIL project, have been involved in a practical way to establish and produce pharmaceutical products as well as launching the produced products to market under the supervision of the licensors.

Through these practices they have experienced additional aspects of learning, which are vital to form new relational routines. For instance, in Case A, relationship initiation capability (RIC) is enhanced by defining specific new processes to support new business relations for launching newly licensed products based on the licensor's requirements. In line with this influential effect, in Case B, RIC is improved through upgraded standards during the licensing process to attract

new foreign partners to develop their relations with the firm. In Case A, relationship development capability (RDC) is enhanced by learning effective requirements to codify business contracts to prevent likely future conflicts. Similarly, RDC in Case B has been empowered by learning technical negotiation, and using techniques of persuasion as well as enacting international contracts professionally, which were effective to decrease possible conflicts. Moreover, in Cases D and C, relationship initiation capability (RIC) is enhanced by utilizing new models, patterns and standards for the evaluation of suppliers and distributors learned from the licensors, as well as through new market research, marketing techniques and knowledge provided by the licensor to identify new opportunities. Relationship development capability (RDC) in Case C is improved by new interaction ability through learning a combination of negotiation techniques and production knowledge from the licensor. RDC is also enhanced in Case D through utilizing the licensor's different models, patterns and standards to evaluate BPs (e.g., distributors and suppliers). In this regard, all studied SMEs, through learning-by-licensing (Johnson, 2002) or learning-by-doing, have learned new skills, capabilities, methods and patterns to work with their business partners. These results also highlight the importance of learning mechanisms (Eisenhardt and Martin, 2000) that are significant to develop and evolve firms' capabilities. Consequently, based on this argument the following proposition is suggested:

Proposition C: The SMEs' relationship initiation capability (RIC) and relationship development capability (RDC) are enhanced by the positive impact of inward international licensing (IIL) on their organizational learning.

5.2.4 Cross-functional teams

This study provides substantial evidence that in all four cases of this study, internal communication across different functions of the firms has been enhanced by the auditing force of licensors during IIL projects. In all cases, writing SOPs has played a crucial role to inform and constitutionalize the cross-functional team effect. For example, in Cases A and B, relationship development capability (RDC) is enhanced by intra-firm relationship development and attaining teamwork ability due to writing SOPs and audits forced by the licensor. Similarly, in Cases C and D, internal communication has been modified toward better interaction with BPs due to SOP writing.

Furthermore, developing information technology (IT) infrastructures according to licensors' requirements is an important issue to facilitate internal communications in the studied firms (e.g., Cases B and D). In addition, relationship development capability (RDC) is also enhanced through cross-functional relationship enhancement due to joint execution of licensing projects (Case C). However, in this study cross-functional teams have only enhanced relationship development capability (RDC), and the empirical investigation does not provide evidence about relationship initiation capability (RIC). When cross-functional teams are empowered, integration of individuals with various resources in different functions of SMEs takes place, which, in turn, plays an important role in enhancing relationship development capability (RDC) as a networking factor, as well as in establishing effective relationships with their business partners. Accordingly, this finding is in line with the results of Ritter and Gemünden (2003) and Walter et al. (2006), who suggested that cross-functional teams are a fundamental factor in developing networking capability. Therefore, based on the above discussion the following proposition is advanced:

Proposition D: The SMEs' relationship development capability (RDC) is enhanced by the positive impact of inward international licensing (IIL) on their cross-functional teams.

5.2.5 Management systems

As is evident from the table of networking capability findings (see **Table 10**), due to IIL projects, several SMEs have obtained new management systems (Grant, 2010) in different areas which are important in supporting and coordinating the firm's capabilities. For instance, in Case A, relationship development capability (RDC) is enhanced by establishing new systems such as intelligent voice response (IVR) learned from the licensor to focus on the firm's end consumers. In case D, relationship development capability (RDC) has been enhanced by applying a new documentation system based on the licensors' requirements. Aside from this, in Cases B and D an information technology (IT) infrastructure has been developed to facilitate communication based on the licensors' conditions. In these cases, this new IT infrastructure has enhanced the relationship development capability (RDC). In other words, the IT system has operated as a strategic facilitator of inter-firm partnering (Paulraj et al., 2008). This perspective is consistent with Grant (2010), who believes that management systems are important to support and develop a firm's capabilities. Therefore, in this study several management systems have played a

supporting role for relationship development capability (RDC) as a component of networking factors. It should be noted that the empirical findings do not provide evidence for relationship initiation capability (RIC) in the studied cases. On this basis, the following proposition can be suggested:

Proposition E: The SMEs' relationship development capability (RDC) is enhanced by the positive impact of inward international licensing (IIL) on their cross-functional teams.

5.2.6 Firm's resource base

Another important finding was that the SMEs' resource base has been changed in all the studied cases. For instance, as **Table 10** shows, in Case C, the relationship initiation capability (RIC) has been enhanced through obtaining new knowledge from the licensor. Similarly, in Cases B and D, relationship initiation capability (RIC) is enhanced through getting a new reputation and a well-known and popular brand as new intangible assets and resources for these companies. In Case A, RIC is enhanced by applying new tools such as pharmaceutical due diligence (PDD) to analyze business partners (BPs). The findings (**Table 10**) also show that relationship development capability (RDC) in all the cases is empowered in different ways. This capability for Case A has been enhanced by establishing new systems such as intelligent voice response (IVR) provided by the licensor to focus on its end consumers.

In Case B, it (RDC) has been enhanced due to using international business-marketing consultants introduced by the licensor (in case B). These marketing consultants were more aware of the BPs' needs. However, when it comes to Case C, RDC has been enhanced by obtaining new product knowledge, and for Case D, it has been improved by defining supportive new processes within the company to control the produced product after the distribution stage forced by the licensors. These findings, therefore, show that IIL has created a new setting for a resource base in the licensees. In other words, SMEs in this study have acquired a new, well-known brand, new processes, new systems and new knowledge. This perspective is fully consistent with the argument that the new setting of a firm's resource bases such as technology, skillful people, reputation and knowledge significantly result in a firm's capabilities development (McKelvie and Davidsson, 2009). Consequently, the ability to initiate and develop business relationships

has been enhanced because of the new setting of the firm’s resource base in the studied cases. Hence, the following proposition is suggested:

Proposition F: The SMEs’ relationship initiation capability (RIC) and relationship development capability (RDC) are enhanced by the positive impact of inward international licensing (IIL) on the firm’s resource base.

The findings of this study show that except in Case D (see **Table 10**), unlike relationship initiation capability (RIC) and relationship development capability (RDC), no empirical evidence indicated considerable impact of IIL on the SMEs’ relationship termination capability (RTC) as the third element of networking factors (NFs), which was an unexpected issue. The author of this thesis considers the following possible reasons behind this difference. First, Case D has been involved with two powerful licensors at the same time (see **Table 8**), whereas the others are working with a single licensor. Working with the two licensors might lead to a synergy effect to enhance RTC as well. Second, during the collaboration of licensors and SMEs, they have not experienced any opportunity to terminate the relationship with their business partners; therefore, the licensors have not provided any instructive lessons in this regard to foster RTC.

Looking at the six propositions above, it is clear that that influenced contextual factors (CFs), including human capital, organizational knowledge, organizational learning, and the firm’s resources, enhanced two components of networking factors (NFs), namely relationship initiation capability (RIC) and relationship development capability (RDC). While the management system and cross-functional teams are two other influenced contextual factors (CFs), only enhanced relationship development capability is illustrated in **Table 12**.

Table 12: Enhanced networking factors (NFs) by contextual factors (CFs)

NFs	Contextual factors (CFs)					
	Human capital	Organizational knowledge	Organizational learning	Firm’s resource base	Management system	Cross-functional team
RIC	√	√	√	√		
RDC	√	√	√	√	√	
RTC						√

Overall, the SMEs’ human capital, organizational knowledge, organizational learning, resource base, management systems, and cross-functional teams constitute six contextual factors of NC

that have been influenced by IIL. These influenced contextual factors within the company have enhanced the two networking factors (NFs) of relationship initiation capability (RIC) and relationship development capability (RDC). As previously noted, relationship termination capability (RTC) has been influenced in only one of the studied cases (Case D). In this regard, **Figure 9** illustrates all contextual factors which have been influenced by IIL. In addition, the figure highlights the different influenced subcomponents of each driver. Moreover, **Figure 9** depicts that except for RTC, the two other networking factors (RIC and RDC) have been enhanced by contextual factors; for this reason, the RTC rectangle is drawn with a dotted line. **Figure 9** is a drawing based on the theoretical framework, as illustrated in **Figure 3**.

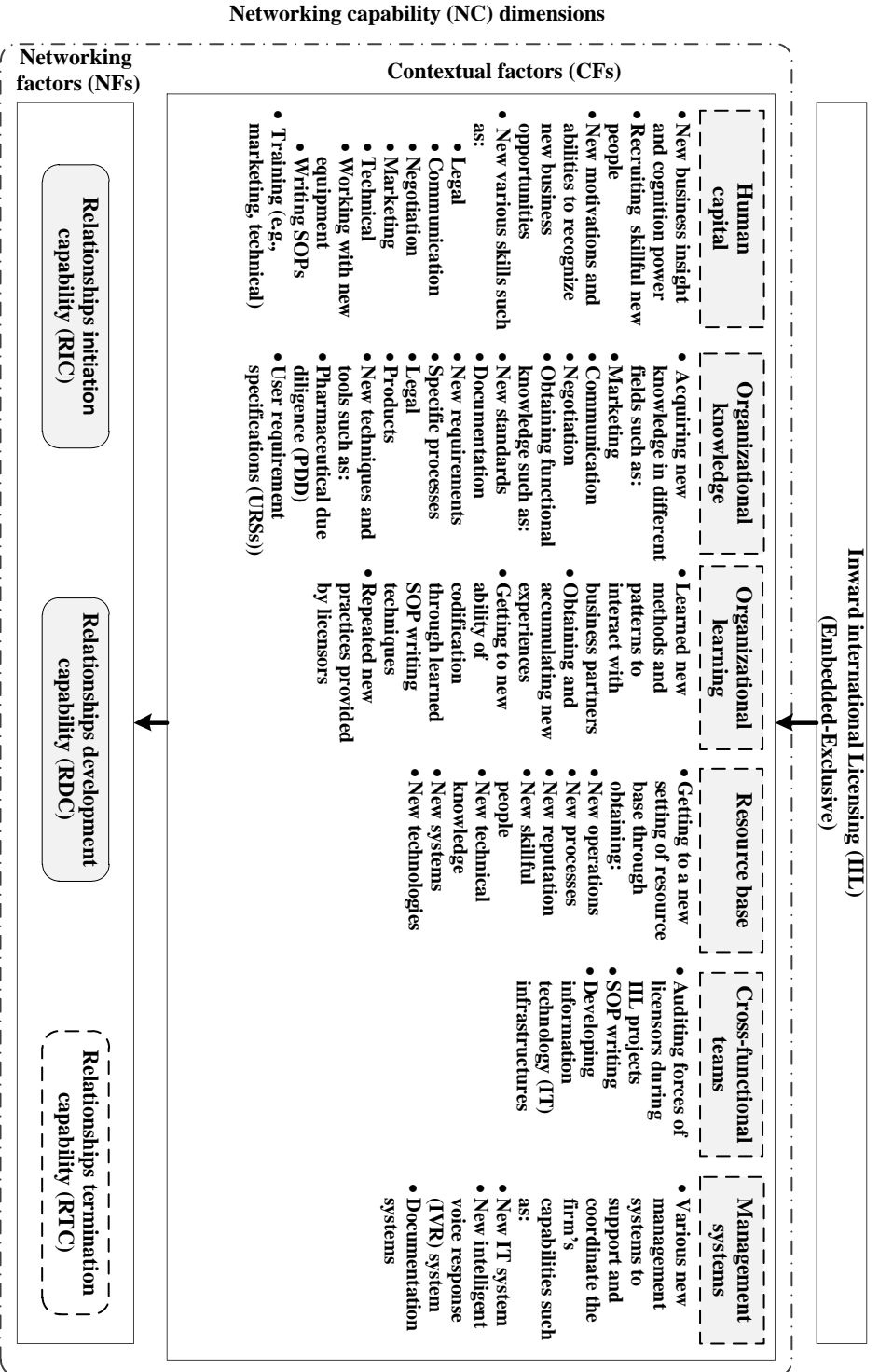


Figure 9: The impact of inward international licensing (IIL) on SMEs' NC

5.3 Meta-capability role of IIL in SMEs

As was pointed out in the last two sections, the results of this study show that IIL has enabled pharmaceutical SMEs to develop both ACAP and NC as two central dynamic capabilities of the firm. From the perspective of the capability literature, this combination of findings can be considered as another important finding because IIL has enhanced the firm's dynamic capabilities such as ACAP and NC. It is evident that the ability to develop dynamic capabilities emphasizes a high order or meta-capability (Ambrosini et al., 2009; Collis, 1994; Winter, 2003). Consequently, these findings confirm that IIL has played a meta-capability role for SMEs to develop their dynamic capabilities. However, this finding itself can be considered as a departure point to comprehensively explore how IIL plays a meta-capability role.

6 Conclusions and recommendations

In this chapter, results of the findings and associated discussion relating to the major impacts of inward international licensing (obtained from pharmaceutical LSEs) on the SMEs' absorptive capacity and networking capability are discussed as the conclusion of the research. In this regard, it starts by presenting the answers of the research questions (RQs) resulting from associated discussions in the previous chapters. It continues with emphasis on research contributions, managerial implications, research limitations, and ends with a presentation of interesting research areas for further research.

In conclusion, this research offers important insights into the major impacts of IIL on the SMEs' ACAP and NC in a developing context, which are separately presented through answering the following two research questions (RQs) in the next sections.

Research question one (RQ1): *How can the major impacts of inward international licensing (IIL) on the absorptive capacity (ACAP) of SMEs in a developing context be explained?*

Research question two (RQ2): *How can the major impacts of inward international licensing (IIL) on the networking capability (NC) of SMEs in a developing context be explained?*

6.1 The impact of IIL on the ACAP of SMEs

The first goal of this study has been to examine the impact of IIL on the firms' ACAP. The results revealed that IIL, by influencing and enabling the five drivers (CFs) of managerial and strategy aspects, HRs, inter and intra-relationships and internal knowledge, facilitates the development of absorptive factors (AFs). In other words, this study explained that the AFs of acquisition, assimilation, transformation and exploitation can be enhanced in all the studied SMEs through IIL.

Based on the findings of this study, it was shown that IIL influences several dimensions of ACAP, and that each driver has had a positive impact on acquisition, assimilation, transformation and exploitation as the four components of the absorptive factors (AFs). The results show that the provided analytical model (see **Figure 2**) as a conceptual contribution of this study is a helpful framework to explain the reasons behind the absorptive capacity enhancement through learning by IIL. Hence, the following results associated with ACAP are concluded in this study.

- First, one substantial finding that emerged from this study is the influence of the SMEs' human resources (as a crucial factor in SMEs) by IIL. Human resources in pharmaceutical SMEs have developed in several ways, including learning new skills and recruiting skillful people (e.g., physicians, engineers, and marketers). Human resources of the licensees have obtained new skills, e.g. technical, communication, negotiation, codification and SOP writing. Furthermore, the SMEs' personnel in the licensees have found new business insight as an effective factor to enhance ACAP. In this regard, the current study has shown that influenced people have had a substantial impact on acquisition, assimilation, transformation and exploitation in all the SMEs.
- Second, another finding was that IIL has changed the managerial cognition and motivation in the studied SMEs; this new improved position, in turn, has played a supportive role to enhance acquisition, assimilation, transformation and exploitation.
- Third, intra-firm relationships (e.g., internal communications, knowledge sharing, cross-functional relations, and teamwork) have been enhanced by IIL in all the studied SMEs; this driver, in turn, has improved only two components of AFs, assimilation and transformation.
- Fourth, due to IIL all SMEs have obtained new knowledge and technology, along with associated tools and equipment. This new level of knowledge has entered the licensees into a new trajectory of experience and ability. Consequently, it has played a crucial role to enhance acquisition, assimilation, transformation and exploitation capabilities in the studied SMEs.
- Fifth, through IIL all SMEs have found new business partners, networks, external communications, negotiation techniques, knowledge resources, and collaborators. These enhanced inter-firm relationships have improved acquisition and exploitation as two components of absorptive factors (AFs).

This study has found that in general, IIL has had a significant learning effect in a similar pattern for all the studied SMEs. The SMEs' ACAP dimensions in a developing context have been strongly influenced and developed by non-equity alliances (IIL in this research) as common tools of the SMEs' inward internationalization.

6.2 The impact of IIL on the NC of SMEs

The overall picture emerging from this study also indicates that the SMEs' networking factors of relationship initiation capability (RIC), relationship development capability (RDC) and relationship termination capability (RTC) can be enhanced through their non-equity alliances, such as IIL with actors (LSEs) which have already advanced their organizational capabilities. However, the findings suggest that relationship termination capability (RTC) is not enhanced like the other dimensions of networking capability.

As the findings of this study showed, networking factors (NFs) are enhanced by IIL through enabling various contextual factors (CF) such as human capital, organizational learning, organizational knowledge, cross-functional teams, management systems, and the combination of the firm's resource base. In this respect, the following results can be concluded from this part of the study.

- First, different aspects of human capital, such as the firms' cognition power, business insights, skills, knowledge and experiences, are positively influenced by IIL. The firm's empowered HR plays a central role in developing the studied SMEs' relationship initiation capability (RIC) and relationship development capability (RDC).
- Second, all the studied SMEs have experienced different learning mechanisms through learning-by-licensing. Mechanisms such as repeated practices, experience accumulation in different areas and experience codification have had positive impacts on relationship initiation capability (RIC) and relationship development capability (RDC) as two components of networking factors (NFs).
- Third, cross-functional teams are empowered in all the SMEs studied through developing an information technology (IT) infrastructure, the licensors' auditing forces, and writing numerous SOPs in different functions required by the licensors. This influenced cross-functional teams in all the SMEs, and led to relationship development capability (RDC).
- Fourth, the studied SMEs' organizational knowledge level is substantially influenced in different fields through obtaining the licensing package of technical core and commercial know-how (e.g., marketing, communication, negotiation and functional knowledge). This organizational knowledge, in turn, plays a crucial role in developing relational knowledge

stores as a driver of inter-firm partnering. Therefore, relationship initiation capability (RIC) and relationship development capability (RDC) have been enhanced by empowered organizational knowledge through IIL.

- Fifth, the licensees' management systems (e.g., IT, intelligent voice response (IVR), and documentation) are advanced through the licensor's requirements. These improved management systems have an effective impact on relationship development capability (RDC) enhancement.
- Sixth, the SMEs' combination of resource bases has found a new setting due to IIL. This new setting is formed by obtaining new technologies, operations, reputation, skillful people, technical knowledge and systems through involvement in IIL projects. The firms' new resource bases enhanced the two networking factors of relationship initiation capability (RIC) and relationship development capability (RDC) in all the SMEs studied.

6.3 General conclusion

Taken together, the results of this study generally indicate that NC and ACAP, as two critical dynamic capabilities, have been enhanced by embedded and exclusive IIL. In other words, IIL has played a meta-capability role to develop two dynamic capabilities in all the studied licensees. What is interesting in this study is that IIL has influenced many aspects of pharmaceutical SMEs as a powerful enabler, the special behavior that often is associated to equity alliances such as joint ventures.

6.4 Contribution

This study offers several contributions to the theory and practice of absorptive capacity (ACAP) and networking capability (NC).

1. The study makes a conceptual contribution to the literature of ACAP and NC by providing associated analytical models (see **Figure 4**) as helpful frameworks to explain the reasons behind the absorptive capacity and networking capability enhancement through learning by IIL.
2. The study makes a contribution to the relevant literature by identifying sub-components of ACAP dimensions to analyze the firm's ACAP (**Table 3** and **Table 4**).

3. The study also enhances our understanding about the role of non-equity alliances such as inward international licensing (IIL) on SMEs' dynamic capabilities enhancement (e.g., ACAP and NC), particularly in a developing context (Iran).
4. The study makes a contribution to the literature on ACAP and NC by providing strong empirical support for contextual factors of ACAP and NC, as well as a better understanding of their impacts on absorptive factors (AFs) and networking factors (NFs) of SMEs as a licensee.
5. To the best of the author's knowledge, this is the first study that highlights the impact of embedded and exclusive inward international licensing on the ACAP of SMEs through examining the sub-components of both contextual and absorptive factors of ACAP (see **Table 3** and **Table 4**).
6. This study provides a better understanding of SMEs' ACAP development through non-R&D activities such as non-equity strategic alliances (e.g., IIL).

6.5 Managerial implications

Overall, a new perspective has been found to better understand the impact of IIL on ACAP and NC by focusing on their drivers. Therefore, this understanding can be a departure point for SME managers to use embedded-exclusive IIL obtained from LSEs (which already have developed their capabilities), not only for attaining a product (s) but also as an appropriate opportunity to deliberately develop their different operational and dynamic capabilities such as ACAP and NC. In other words, SMEs could effectively use more benefits from IIL if their managers prepare a preplan to develop and enhance ACAP, NC and even other capabilities through learning by IIL.

As previously noted, because of resource limitations SMEs are less R&D-driven, and their innovation capability is more based on skillful people and external networking. Hence, according to the findings of this study, particularly the impact of IIL on SMEs' HR, managers of SMEs can compensate for their problems through following learning by inward international licensing (IIL) to empower their employees' business insight, various skills, experiences as well as their networking capability.

6.6 Research limitation

This study is limited in a number of ways.

On the one hand, the study examined a special type of international licensing (embedded, inward, and exclusive) with very large-scale enterprises (LSEs) as multinational licensors. On the other hand, it was performed only in the pharmaceutical industry sector in a developing context; thus, these conditions might limit our empirical generalization for other industrial sectors.

Another problem can be raised because of time or historical limitation. As **Table 8** illustrates, several IIL projects were terminated about eight years ago; therefore, it may be difficult for informants to recall all relevant information from their memories.

6.7 Further research

During this study, eleven propositions were suggested, five for ACAP and six for NC. Consequently, testing the generated propositions in this study in a comprehensive and extended industrial sample is recommended as the first further step in quantitative research.

A close look at the findings of this study shows that there are some common issues such as HR, organizational knowledge, and inter and intra-firm relationships which had influential effects on both ACAP and NC. On this basis, these common contextual factors can be considered as the possible source of mutual interrelationships and synergic effect of NC and ACAP due to IIL. Accordingly, carrying out a qualitative study to explore the impact of IIL on ACAP and NC with focus on their mutual interrelationship is recommended.

Moreover, given the limitations of this study explained in the previous section, further research in other industrial sectors (in a developing context) based on the proposed research framework is recommended. The current study offers valuable insight, but it has only examined the major impacts of IIL on ACAP and NC, and it does not explain the mechanisms of capabilities enhancement. Nevertheless, it can be developed by focusing on the mechanisms by which IIL leads to develop AFs and NFs. In other words, in order to understand how IIL impacts ACAP and NC, new explorative research is strongly suggested. The findings of this study are limited by the use of a cross-sectional design, and it only generates a picture from reality, but if we want to find a more comprehensive insight on capability development, a longitudinal case study is also

recommended, particularly for those SMEs which are going to start new IIL projects. By carrying out a longitudinal study, it will be possible to understand the evolution of dynamic capabilities such as ACAP and NC over time.

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Appendices

Appendix I: interview guides

Interviewee's profile:

1. Date of interview
2. Name
3. Position within the company (licensee)
4. Place of interview
5. Time

Company's profile:

1. Licensee company
2. Licensor(s) company
3. Type of licensing
4. Licensor's location
5. Number of licensed products
6. Licensed product(s) name
7. Date of licensing
8. Number of firm's employees before licensing
9. Number of firm's employees after licensing
10. Date of starting the license
11. Date of finishing the projects
12. Annual sales before licensing
13. Annual sales a year after licensing
14. Preconditions of licensor

Absorptive capacity (ACAP) questions

General question:

What capabilities and abilities were developed in the company during and after obtaining Inward International Licensing (IIL)?

Acquisition

1. Does IIL affect the firm's ability to search and identify valuable external opportunities such as knowledge, technology and information? If so, why? What about the firm's ability to collect relevant data?

Assimilation

2. Does IIL affect the firm's ability to understand (comprehend) and interpret the knowledge (or information) acquired from outside the company? Why?

Transformation

3. Does IIL effect the company's internal communication and related social mechanisms such as information and knowledge sharing, teamwork and...? How?
4. Has IIL had any impact on your company's ability to record, organize, store and maintain newly acquired knowledge (or experiences) for future reference? If so, please explain.
5. Does IIL improve the knowledge re-codification process to create new routines or correct existing routines? How?
6. Did IIL enable the company to transform acquired knowledge to improve existing processes and products or any other application? What about new processes and new product development?
7. What was the likely effect of IIL on the firm's ability to combine existing knowledge with newly acquired knowledge?

Exploitation

8. What was the likely effect of IIL on the firm's ability to utilize (or transfer) acquired knowledge in the process of new product (or process) development?
9. Have you had any experience about process improvement in your company which resulted from licensing lessons?
10. Did IIL have any impact on your company's ability to apply new acquired technologies?
11. Have you had any experience to match and apply new technologies with new products based on learned lessons from IIL? If so, please explain.
12. What was the effect of IIL on your attitude about R&D?

Networking Capability (NC) questions

General question:

What was the effect of IIL on the nature of your cooperation and business relationships with your business partners (BPs)?

Relationship initiation capability (RIC)

1. Has IIL had any effect on the firm's ability to recognize new business opportunities (e.g. knowledge, technology, customers, suppliers ...) in the market? If so why?
2. What do you think about the likely impacts of IIL on the firm's ability to evaluate identified BPs?

3. Does IIL affect your company's ability to attract identified business partners compared with the time that you had not obtained IIL? Please explain.

Relationship development capability (RDC)

4. Can you recall any effective impact of IIL on your firm's ability to get more knowledge on its BPs?
5. Does IIL have any effect on your ability to recognize and evaluate your BPs' needs (expectations and requirements)? How? Please compare it with the time you did not have IIL.
6. What do you think about the impacts of IIL on the nature and quality of your company's cooperation (inter-firm relationship development) with its former BPs?
7. How did IIL effect on the nature of the firm's social mechanisms, inter-personal interaction, information exchange, and inter-departmental communications? Why? Please explain.
8. Has the licensor had any effect on your ability to manage likely conflict(s) with your BPs? If so, Why?

Relationship terminating capability (RTC)

9. Does IIL affect the firm's (licensee's) ability to terminate business cooperation with your BPs? Why? Please explain.

Appendix II: the relevant papers

1. Saeedi, M.R., Dadfar, H., Brege, S., 2014. The impact of inward international licensing on absorptive capacity of SMEs. *Int. J. Qual. Serv. Sci.* (Under printing)
2. Saeedi, M.R., Dadfar, H., Brege, S., 2013. SMEs networking capability (NC) development in relationship with large size enterprises (LSEs) through inward international licensing (IIL). Presented at the European Entrepreneurship: How Entrepreneurs (Should) Act in Global Business Environment, the Bulgarian Association for Management Development and Entrepreneurship, Albena, Varna, Bulgaria.
3. Saeedi, M.R., Dadfar, H., Brege, S., 2013. SMEs' absorptive capacity enhancement through learning-by-inward international licensing-The case of Pharmaceutical industry, in: *Quality Management and Organizational Development*. Presented at the 16th QMOD-ICQSS Conference, Moderna organizacija-Faculty of Organizational Sciences, Portorož, Slovenia, pp. 1509-1528.
4. Saeedi, M.R., Dadfar, H., Brege, S., 2012. Rapid Internationalization of SMEs from Resource Based View: A longitudinal Study of a Pharmaceutical company in Iran. Presented at the LCBR European Marketing, Lupcon Center for Business Research (LCBR), Munich, Germany. In this article the concept of *networking capability* is related to this thesis.