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Using Alliances to Increase ICT Capabilities

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Acknowledgements

Writing this thesis has been an educational roller-coaster ride, with me in the front seat trying to make sense of it all. Collecting empirical material was more often than not great fun and trying to write good academic text was often fraught with disappointing tries and near successes. More often than I care to remember I would think that I had reached the summit of this Mount Everest of tasks, but alas that was not to be. At the end of the day I believe that Winston Churchill surmised the whole thing in the most appropriate manner:

> "Writing a book is an adventure. To begin with it is a toy and an amusement. Then it becomes a mistress, then it becomes a master, then it becomes a tyrant. The last phase is that just as you are about to be reconciled to your servitude, you kill the monster and fling him to the public."

At the end of the day, it is not you who write a book but rather it is quite a team effort where thanks are due in many areas. First and foremost to Lollo who has been forced to endure my absence from many weekends, supposed summer vacations as well as weeknights. The immediate family and friends as well as Cajsa who have all helped take care of and in parts raise both Flora and Vivi.

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For now let me leave of with:

Non Plus Ultra

Lund, 18 September 2013

Paul Pierce

Introduction

Alliances and information systems can interact and both can be seen as facilitators for change and knowledge sharing. The principal thought to be presented in this thesis is that information systems and IT in general is at the heart of most changes taking place in any business environment today.

Perhaps the most popular way to describe our present time is through stressing the disintegration of boundaries between nation-states and organizations (Afuah, 2003, Feenberg, 1999). The Internet has rendered possible new forms of boundaryless identities: Wikileaks' disclosure of state secrets have crossed the boundaries for privacy and state security; the new market conditions compel employees to continuously cross organizational boundaries, taking up what some have called boundaryless careers (Arthur, 1994, DeFillippi and Arthur, 1994); and organizations, in order to stay competitive, need to cross corporate boundaries to acquire new competencies. Foremost in this quest for competence lies the ability to harness and use Information and Communication Technology (ICT) both in its own right and, more importantly, as a chalice to exhume learning and knowledge (Winter and Szulanski, 2001, Jensen and Szulanski, 2004).

It is ICT's capacity as a medium to facilitate knowledge sharing for the learning organizations that we will be concerned in the present thesis and the effect ICT has on alliances. The nature of the corporation in the 21st century is not one of stable boundaries but one of constant fluidity. Indeed, to constantly renew one's business model has become an essential action for corporations to take (Bard and Söderqvist, 2002, Dyer et al., 2001), and rapidly acquiring, adopting and employing resources are equally important (Grant and Baden-Fuller, 2004, Prahalad and Hamel, 1990).

Needless to say, these transformations have put new pressures on corporations and their employees. Less obvious however is how corporations can deal with these transformations. One popular way is through alliances or variants of this phenomenon. In this thesis I will focus on: a) how alliances are used as a mean

to get better products, with particular focus on ICT (Information Communication Technology[1]) capabilities, and b) the struggle for a whole industry to update its business through the use of ICT. An initial thought was to chart a spectrum of alliances, from longer more committed and serious engagements to shorter commitments that could almost be labeled "weekend excursions". However, the actual longevity of the alliance is not of primary interest but rather the way in which companies work together in order to better utilize ICT in products. The starting point for me has been that ICT in its different shapes and guises has fundamentally changed – or has the capacity to change – the prerequisites of any given business environment. This would also in extension mean that the underlying theoretical theories that hitherto have governed business rules can – or even should – be affected (Hovorka et al., 2012, Thies et al., 2012).

Before going any further, I just want to touch on the three main subjects that make up this thesis, which are *Alliances, Capabilities* and *ICT-Capabilities.* The thesis examines how companies use *alliances* in order to understand and assimilate partners' *capabilities*, in particular *ICT-Capabilities*. The goal of the thesis is to describe and explain how *ICT-Capabilities* are built, nurtured, disseminated and utilized with the help of alliances. In the following chapters, we will revisit the three main traits, *Alliances, Capabilities* and *ICT-Capabilities,* in order to see how they intercede with the empirical and theoretical problems to be discussed further on (1.1 and 1.2).

In order to discuss what factors influence alliance building, it is prudent to give my definition of what an alliance is. Alliances have many shapes, sizes, roles and names.

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[1] ICT is an ellipsis of everything technical that can be said to handle information and aid in communication, e.g. computers, networks, IP cameras, IP phones, voice, radio, TV over the internet etc. In everyday life, it is also often used as a form of synonym to Information Technology (IT).

In this thesis I will view alliances as:

Collaboration between two or more parties aimed at reaching common and individual objectives.

I have chosen to view a capability as:

A set of processes that enables companies to combine different assets in a coordinated fashion to create value[2].

Finally I define ICT-Capability as:

A capability that enables a company to use and develop inherent or new ICT knowledge to create value.

I will elaborate on these definitions in the following chapters with the help of authors such as Dyer and Singh (1998), Kale and Singh (2007), Pavlou and El Sawy (2010), Peteraf et al. (2013), Schilke and Goerzen (2010), and Teece et al. (1997).

Empirical problem

Today alliances in all shapes and sizes are important to almost all companies within a variety of industries, to the public sector, NGOs and, by extension, also to private citizens. We see alliances being formed in all manners, within all markets and within most firms in one-way or another. Most alliances are formed to achieve some specific goal, e.g. reduce risk in the market, increase speed to entering into a new market, attaining new technology or to achieve change at a discounted price (Sivadas and Dwyer, 2000). Hughes and Weiss (2007) have suggested that alliances represent as much as 30% of revenues for many companies. This is because, as indicated above, corporations are now forced to constantly and rapidly navigate through unknown and murky waters. Taking into account today's pressing need for traditional industries to acquire novel knowledge about ICT, the subject of this thesis is becoming increasingly pertinent (Kennewell, 2003).

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2 Based on work from Teece et al. (1997).

In this study I aim to contribute to the body of alliance literature by investigating and describing the process through which a corporation can acquire and make use of ICT capabilities. How traditional industries are transformed by technological innovations is well documented not just in the academic literature, but even more so in the popular press. The music industry is a case in point. Everyone knows of the new technological platforms which have radically changed the rules for how the music industry does business. One of the fundamental starting points of this thesis is that the physical security industry assumes a similar transformation[3]. With the infusion of ICT we can expect to see a change in how business is conducted. Even in the first contacts with the industry, it became evident that many were anticipating radical transformation. At the same time, it seemed as if no one knew how to prepare for such change, or what measures to take.

Giving some thought to the empirical problem described above, I would argue that this thesis should be of interest both to academia and practitioners within the physical security industry. I will both endeavor to further our theoretical knowledge of how companies can work with alliances in order to increase their ICT capabilities, and give insights in the transformation of the industry and in how to work with alliances in order to better be able to embrace the changes that ICT has brought about.

Alliances

The ever-changing marketplace creates a highly competitive and often stressful environment. Firms continuously look for ways to lower risk as well as uncertainty, often by gaining market share and/or by reducing production costs. Inter-firm collaboration, or alliance building, has proved to be a tool that can be used for a number of purposes. It can be used as a way of decreasing uncertainty, to increase market share, to gain industry specific knowledge and so forth (Kliman and Visioni, 2002, Kuglin and Hook, 2002, Lorange et al., 1992, Park and Zhou, 2005, Simonin, 1999a).

Even though alliances are widely recognized as one important aspect to company success, the actual work around alliances is often hard, unglamorous

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3 The object of study is the physical security industry, which will be described in detail in chapter 4.

and full of pitfalls (Das and Teng, 1997, Teng, 2007). The history annals are littered with companies that have neither embraced change, nor understood the way to have successful alliances. They have either fallen by the wayside or suffered for their rigid behavior. There are undoubtedly industries that are more prone to change and alliance building than others, and one example of this is the IT industry (Nadkarni and Narayanan, 2007). The IT industry as a whole has constantly embraced and almost become synonymous with change and alliance building. It has to do with the way they do business and in the hardware and software that makes up their business (Das et al., 1998, Swansson and Ramiller, 2004).

The reasons behind alliance building can be many, but one that is often cited is the increasing complexity of the market place (Bronder and Pritzl, 1992, Hoffman, 1997, Park and Zhou, 2005), where ICT ads to the complexity (Ybarra and Wiersema, 1999). Regardless of motive, more and more companies are adhering to networking theories and partnering programs, which can all fall under the alliance umbrella. In reference to this, many scholars have warned about the risks of collaboration, e.g. that your partner may take over your core competence and knowledge and make it his/her own (Behrend, 2006, Hamel et al., 1989, Lumsdon, 1996, Park and Ungson, 2001, Reich and Manklin, 1986). Others have voiced strong beliefs in the potential possibilities with alliances, even though many alliances fail due to specific circumstances (Bronder and Pritzl, 1992, Doz and Hamel, 1998, Inkpen and Tsang, 2005).

Regardless of the ultimate outcome, i.e. success or failure, the fact is that in many cases the decision to create an alliance is based on the environment in which the firm operates. The notion of what the competition is doing or planning to do, is more important than the firm's own expected gains or even losses by entering into an alliance (Park and Zhou, 2005). Taking this argument to its fullest, it could be argued that the outcomes of alliances are partly dependent upon what others do and not necessarily on what the individual firm does. It could indicate that capabilities associated with alliances might mean less than has been argued by authors such as Chen and Lee (2009) or Kale and Singh (2007), but more on this in the following section. What we do know is that there are many uncertainties around alliances as stated by among others Beckman et al. (2004) and Gulati (1998). We also know that there is a connection between having knowledge and experience with alliance work, i.e. an alliance capability, and higher alliance

success rate as shown by among others Ireland et al. (2002), Kale and Singh (2007), Rothaermel and Deeds (2006).

This thesis deals primarily with how alliances are used to increase a company's ICT capabilities, which means that we have to understand both ICT capabilities as such and the overarching concept of a potential alliance capability. To find an alliance capability, we will look for a process that enables better alliance building and management.

Capabilities and ICT

There appears to be an incongruity in firms' ability to manage their alliances and creating value from them (Kale et al., 2002, Kale and Singh, 2007). This inconsistency in alliance management suggests that certain capabilities are missing. Going by Zander and Kogut (1995), we learn that firms' capabilities are mainly focused around how organizations organize and communicate both corporate and individual expertise. This means that the transfer and communication of skills and knowledge is part of this capability. The special issue of Strategic Management Journal from 1996 deals with this very topic under the title *Knowledge and the firm*. Spender and Grant (1996) acknowledge that knowledge is a resource of the firm, where the ability to transfer organizationally embedded knowledge becomes a competitive advantage.

Moving our discussion further into capabilities – whether it be organizational capabilities, alliance capabilities or the transfer of ICT knowledge as a capability – you inadvertently get to a discussion around how a capability rests upon unique sources of knowledge (see e.g. Kale et al. (2002)). Taking this thought to alliances, it is not too far of a stretch to claim that alliances are often – but not always – about knowledge transfer. Mowery et al. (1996) examined this by observing how alliance-partners' technical capabilities change over time. Furthering this notion on capabilities is also work from Zander and Kogut (1995), who argue that capabilities primarily are centered on organizing principles by which individual and functional expertise is structured, coordinated and communicated. More interesting is an article by Lichtenthaler (2008) who argues that alliances, or interorganizational relations, can be regarded as an extended knowledge base that the organization has access to. If we take it as a prerequisite that alliances in different ways help

companies gain access to something of intrinsic value to them, we need to understand primarily what tools, or capabilities, are required to gain access to this value. In this thesis the value is to have ICT capabilities.

I would argue that what is needed is an alliance capability that lets organizations dynamically use and manage knowledge that is available within the alliance network without having to internalize this knowledge. This is something that Pavlou and El Sawy have touched upon in their article on improvisational capabilities in turbulent markets (Pavlou and El Sawy, 2010). As mentioned earlier, Lichtenthaler (2008) discusses this notion as a relative capacity and discusses how organizations can retain knowledge outside of firm boundaries.

This means that we need to understand and verbalize what we mean with capabilities as such. Peteraf et al. (2013) argue that the field of dynamic capabilities has evolved or developed from two major influential papers, namely Teece et al. (1997) and Eisenhardt and Martin (2000). Peteraf et al. (2013) further argue that the views represented by the two articles are complementary in many parts but also contradictory when it comes to how companies achieve sustained competitive advantage by having dynamic capabilities. What is especially interesting with Peteraf et al.'s article is that you can see how the field is sharply divided between two clusters of authorship. The dividing factor is whether or not dynamic capabilities can help companies achieve sustainable competitive advantages within rapidly changing environments.

Before going any further it is important to point out that I am not driving the point that capabilities are equal or even similar to dynamic capabilities. My starting point to understanding capabilities came from Teece et al.'s (1997) article on dynamic capabilities from a management perspective and Teece's (2007) work on explicating dynamic capabilities, which in part is a rebuttal to Eisenhardt and Martin's (2000) description of dynamic capabilities as best practice. Regardless of author origin, dynamic capabilities as such are proposed and conceptualized as a specific set of capabilities that help firms to: *"… reconfigure existing operational capabilities into new ones to better match the environment. Pavlou and El Sawy (2010:444)"*

Looking to Teece et al.'s (1997) paper, they have used a number of different sections within the paper to highlight thoughts behind dynamic capabilities,

which helps the reader to form an opinion on what capabilities as such are, or at least can be. Leaving the actual discussion around dynamic capabilities, but building on the research by Teece (2007), Teece et al. (1997) as well as Eisenhardt and Martin (2000)

I propose the following definition of capabilities:

A set of processes that enables companies to combine different assets in a coordinated fashion to create value.

Furthering our discussion to also include ICT and potentially ICT capabilities, the really interesting thing about Information Communication Technology (ICT) is that it is constantly penetrating new domains of applications. There are almost countless examples of how traditional industries, or segments of an industry, have drastically changed or even been eliminated by the introduction of advanced ICT. It is not unfair to claim that ICT has changed market conditions from top to bottom for businesses such as banking (Mazur, 2008), printing (Rhaume and Bhabra, 2008) and the music industry (Lam and Tan, 2001). Another really noteworthy example is the media industry, where we now have blog superstars that have a greater influence on both industries and on people's life than many regular newspapers or lifestyle magazines. I would go as far as to say that nation states are also affected, if nothing else then just because of the fact that most politicians have their own blogs. The image, or appearance, of the personal and business life has come increasingly under scrutiny as the media space of ICT has evolved (Castells, 1996).

There are numerous examples of how the IT industry in different formations, inside as well as outside of the actual IT industry, has joined forces to achieve a better end-product for both themselves and the customers (Panteli and Sockalingam, 2005, Scott, 2000). ICT is an important part of everyday life for individuals, corporations and nation states or, in the words of Feenberg (1999):

> Every major technological change reverberates at many levels, economic, political, religious, cultural. Insofar as we continue to see the technical and the social as separate domains, important aspects of these dimensions of our existence will remain beyond our reach as a democratic society. The fate of democracy is therefore bound up with our understanding of technology. (Andrew Feenberg, 1999: vii)

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Understanding that ICT often acts as a catalyst for change and development, it is easy to appreciate why companies in all segments are interested in possessing ICT capabilities. Pavlou and El Sawy (2010) argue that a key to being competitive is to know how to use ICT to your advantage. Bharadwaj (2000) uses the Resource Based View to discuss firms' performances based on their ICT[4] capabilities. Bharadwaj furthers the discussion by defining a firm's ICT capability as an: *"… ability to mobilize and deploy IT-based resources in combination or copresent with other resources and capabilities. Bharadwaj (2000:171)"*

This is supported by Henderson and Venkatraman (1993) who argue that the firm's ICT capability originates from underlying strengths in IT infrastructure including human resources and "IT-enabled intangibles[5]". Closing out our initial discussion on ICT capabilities, we can look to Corvello et al. (2013), who build on the Relative Absorptive Capacity theory by Lane and Lubatkin (1998) to argue that it also seems plausible that ICT capabilities need to take into account norms, structures and dominant logics.

This leaves us in a situation where ICT has been identified as a resource that is scarce and difficult to imitate and where ICT capabilities as such take time to both learn about and learn to handle, i.e. understanding norms, values, dominant logics, etc. However we do not know much about why it is hard to learn about and handle ICT. Furthermore this does not really open the proverbial "black box" of ICT capabilities, or skills, as such either. We have a number of authors discussing effects of ICT capabilities and the criteria to which we can hold the performance of the effects accountable, but we still do not know much about what make up ICT capabilities, and it would seem as we know even less on the subject of what makes ICT so hard to encapsulate.

Furthering our discussion on ICT capabilities, Aral and Weill (2007) use a theoretical model that attempts to explain ICT capabilities. They use a somewhat different terminology than this thesis. It will be explained further in the theoretical chapter, but briefly it encompasses three main areas: Assets, Competencies (skills) and Practices (Routines). They discuss how

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4 Bharadway (2000) uses the term IT but, as I have stated previously, I use ICT as an overarching ellipsis of everything technical and hence I believe I can change the term here.

5 An intangible is something that is recognized as existing but that is hard to quantify. An example of an intangible that could be linked to IT is intellectual capital.

organizations need to understand both their technical assets in the form of hardware, processes and information management and, more importantly, competencies in the form of human resources skill base and management's ability to align ICT skills with business needs. Finally they discuss the need of practical knowhow of ICT, which translates to staff's experience in using ICT, how much the firms actually use ICT and the actual architecture on which the ICT is built, i.e. open systems or proprietary ones. These points are similar if not exactly the same as those mentioned by among others Corvello et al. (2013), Henderson and Venkatraman (1993), and Pavlou and El Sawy (2010).

As a guide in this study, I will make use of Aral and Weill's capability components under the "characteristics of knowledge transferred" category in the theoretical chapter. The later analysis will help relate ICT capabilities as discussed by Aral and Weill to more general knowledge theory.

Trying to encapsulate the former segments' discussion on ICT capabilities, I have endeavored to come up with my own generic definition of ICT capabilities. This was done to avoid it being specific to any given situation, e.g. for open innovation processes or for turbulent markets.

I have defined ICT capability to mean:

A capability that enables companies to use inherent or new ICT to create value.

Having defined ICT, let us ponder the parts that make up ICT, i.e. IT and IS. I regard IT as a "realizing" technology, meaning the physical prerequisites such as computers, phones, software, networks and so forth that do the hands-on work (Friedman, 1994). ICT, on the other hand, is an inherent expectation of usage of the IT. This leaves us with IS, which I regard to be the implementation of realizing technologies, e.g. IT or ICT, in a context whereby users access and exchange data (Checkland and Holwell, 1998, Watson et al., 2010). This further means that an ICT capability is an ability to use IT internally as well as externally in order to create different forms of value, which in turn can be interpreted as *a capability that enables companies to use inherent or new ICT to create value*, i.e. the definition of ICT capability I have chosen for this thesis.

During these past pages I have touched upon the empirical problems around alliances and capabilities. Whereas the studies of alliance building with a

business perspective are numerous, there does – however – seem to exist a gap between theoretical ideas and the practical usage of alliances. Consequently the theory neither cover how alliances work in conjunction with IT, ICT or IS, nor how alliances can be utilized to get better usage or knowledge of any of these. There are studies showing that having a form of alliance capability is important for success (Draulans et al., 2003, Kale and Singh, 2007), and there are studies showing that having an ICT capability is important to general success in the 21st century for organizations (Davidson and Olfman, 2004, Mowery et al., 1998, Renken, 2004). But we still do not have a clear understanding of what makes up these ICT capabilities, even though we know they are important.

Connecting the discussions on ICT and alliance capabilities to the title and purpose of the thesis, we also lack an understanding of how you can potentially transfer the ICT capability through alliances. The existing theory has been focused to a large extent on alliance capabilities as well as the ICT capability as separate entities (De Man et al., 2010, Duysters et al., 1999, and Rothaermel and Deeds, 2006), which have been exemplified in the previous two segments. What seems to be lacking is both theory and studies on how we can use alliance capabilities in order to gain ICT capabilities. This discussion leaves us with an indication of gaps in our knowledge around alliance theory, and more specifically it shows uncertainties in our understanding of how alliances interact with ICT, leading to a need to pinpoint the theoretical problem.

Theoretical Problem

Alliance research has a long lineage going back at least to the time after WWII when the US "war machine" needed to find new profits in non-war like ventures (Djelic, 1998). There was a genuine fear that the strong organizations would try to replicate what for instance US steel and GM had done, which was to try to create vertical monopolies. According to Djelic (1998), this meant that there were strong legislations put in place and that the industry had to find partners that would help them diversify without owning the "silo". The idea of partnering is something Ansoff (1958) as well as Mace and Montgomery (1962) incorporated in their work on industrial logic. Even

though the articles primarily focused on scale effects on R&D (Research & Development), production and distribution and on the possibility of ostentatiously avoiding antitrust legislations, they still give an inkling of the alliance subject to come two decades later. Further on, Evan (1963) discussed non-contractual agreements and how seven different dimensions potentially influence organization(s) interaction. Interestingly enough, issues such as overlapping goals, values and organizational resources are discussed already at this point, something I will come back to in the next chapter.

Of course, forming alliances with the intention to improve performance is as valid today as it was in the 1990s or, for that matter, in the 1960s. But the focus on sustained competitive advantage seems less so. Today, few corporations can be said to enjoy sustained competitive advantages. This means that corporations to an increasing extent are compelled to continuously revise their business models, if not drastically changing course, to survive competition (Barney, 1991, Barney et al., 1995).

During the 1990s there was a boom in literature on alliances with names such as Lorange et al. (1992), Parkhe (1993), Inkpen (1995), Gulati (1995a), Doz (1996), and Eisenhardt and Schoonhoven (1996). They argued around the intent of alliances as well as trust and cognition in and around alliance forming. In essence they were all describing different factors that they believed influence the alliance in any way. When the 1990s turned into the 2000s, management scholars suddenly seemed less interested in investigating alliances or even using the term of alliance. Some argued that alliances were but a passing fad. Badaracco (1991) was quite early in voicing critique on alliances. If alliances no longer hold the same privileged position in the field of strategic management, then why do I propose a renewed interest in alliance building? First and foremost we see more and more alliances in business today although, as I have alluded to a number of times, there are more failures than successes in alliance work. Second, today's widespread access to ICT holds the potential to improve alliances' success rate.

This leaves us with a theoretical problem that concerns bridging two overlapping academic areas of inquiry: strategic alliances and ICT capabilities. The former of these areas has been thoroughly researched, and there are numerous empirical studies indicating the problems as well as the opportunities associated with alliances. Moreover, alliances have been theoretically connected to more general questions concerning strategic

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management and how corporations can craft alliances of a more strategic and long-term nature. Some studies have even connected alliances to the field of ICT (Davidson and Olfman, 2004, Villas et al., 2007). However, these studies tend to gloss over the many nuances of ICT and ICT capabilities. More to the point, they have not sufficiently addressed the complex relation between ICT capabilities on the one hand and alliances on the other. What I will endeavor to do is to understand how an alliance can help a physical security company achieve ICT capabilities.

Building on previous models and frameworks, this thesis begins by collecting, assimilating and connecting various topics and issues with regard to alliances. In doing so, I intend to do two things. First I wish to provide a thorough literature review. The review will include dominant definitions, perspectives and empirical applications. It will offer an accessible overview of an enormously broad and heterogeneous area. Second, by collecting and subsequently connecting various elements from existing literature, I wish to develop a preliminary framework. This will be a starting point from which we might begin to understand the particular problems associated with acquiring and employing new ICT capabilities through alliances. Despite the vast numbers of frameworks on alliances, see e.g. Bronder and Pritzl (1992), Das and Teng (2001), Draulans et al. (2003), Hughes and Weiss (2002), Inkpen (2000a), Park and Ungson (2001), we still have an abundance of articles that show alliance failure rates of over 50%, see e.g. De Man et al. (2010), Draulans et al. (2003), Duysters et al. (2012), Hughes and Weiss (2007). Mikael Porter (1991) devotes substantial effort in his article to discuss the challenges of theory building, where one part is focused on models and frameworks. This has bearing to my work in so much that Porter gives a good overview of what a framework is. He argues that frameworks identify both the relevant questions and variables that the user needs to answer in order to develop conclusions that are tailored to a particular industry.

Alliances

Studying the concept of alliances, it would seem as if they, at least during some periods, have been one of the most popular topics in the literature on strategic management:

> Strategic alliances appear to have become the single most commonly adopted strategy. De Rond (2003:8)

Now, given the practical orientation of the literature (focusing on performance and success), we already have numerous models and frameworks through which we might understand alliances. Commonly, these frameworks focus their attention on various factors or categories influencing an alliance, be it in a positive or a negative direction: *cultural* differences and intentions (Brown et al., 1989, Park and Ungson, 1997, Parkhe, 1991, Rottman, 2008, Sirmon and Lane, 2004); *cognitive abilities* and *perceived trust* (Anand and Khanna, 2000, Becerra et al., 2008, Davidson and Olfman, 2004, DeTurk, 2006, Gulati, 1995a, Inkpen and Tsang, 2005, Kale and Singh, 2007, Park and Ungson, 1997, Parkhe, 1993, Simonin, 1997); *information and knowledge transfer* (Culpan, 2008, Davidson and Olfman, 2004, Eisenhardt, 1989a, Inkpen, 1998, Inkpen and Tsang, 2005, Kale and Singh, 2007, Khanna et al., 1998, Naumenko et al., 2005, Simonin, 1999a) and *organizational learning* (Anand and Khanna, 2000, Grant, 1996a, Grant and Baden-Fuller, 2004, Inkpen, 1995, Inkpen, 1998, Inkpen, 2000b, Kale and Singh, 2007, Rothaermel and Deeds, 2006, Simonin, 1997). These are only some of the recurring themes used to explain (un)successful outcomes of alliances. What this shows us is that there is a lack of consensus to understanding alliances and about the theoretical standpoints.

Capabilities and ICT

I believe we need to dissect the ICT acronym to some point. To me Information Communication Technology is the focal point for how *Technology* from IT and *Systems* for IS comes together with *Information* from all three acronyms to describe how we can manage a firm's capabilities. In Lund on Informatics, Carlsson (2005) argues that organizations have always managed knowledge, but that the issue now has become more about how they manage and use ICT. But it could also be argued, as by Orlikowski and Iacano (2001), that IT is in fact the core artifact of the IS field that we have not researched fully. This view, right or wrong, has been criticized by among others Alter (2003a, 2003b) who argues that IS at best is to be regarded as an organizational work system supporting other organizational systems. This is similar to how Avison and Fitzgerald (2006) portray IS:

> An information system in an organization provides processes and information useful to its members and clients. These should help it operate more effectively. The information might concern its customers, suppliers, products, equipment, procedures, operations, and so on. (Avison and Fitzgerald, 2006:3)

Whether we want to adhere to Benbasat and Zmud (2003) and Orlikowski and Iacano (2001), who argue that IS research should focus on the IT artifact, or if we want to go with critics of the view (such as Alter 2003a, 2003b), who argue IS as a supporting system, we need to accept the notion that ICT encompasses both the technology part in IT and the communication of information part of IS, see e.g. Avison and Fitzgerald (2006). In this thesis, I argue that we should view ICT as *the process by which ICT can be integrated into an already existing set of human, physical, financial, informational and intellectual capabilities.* While the direct relations between alliances, capabilities and ICT capabilities have not been unexplored up till now, the argument of the thesis could be seen as part of a larger question concerning strategic management and IT. Here, there is a plethora of work investigating the relation between IT/ICT and competitive advantage, see e.g. Teece et al. (1997). In addition there are studies on resources, capabilities and competencies in relation to ICT, e.g. Anand and Khanna (2000), Bharadwaj (2000), Kogut and Zander (1992), Rothaermel and Deeds (2006). By focusing on the development of ICT capabilities within the context of alliances or, more precisely, the difficult or next to impossible work to develop ICT capabilities through alliances, this study provides a distinct contribution to the subfield connecting strategic questions with ICT.

With that preliminary problematization of capabilities in mind, we can now turn our attention to the other key term: ICT Capabilities. If the meaning of capabilities only allows for a limited space of alternative interpretations, ICT and ICT Capabilities are open for an almost infinite number of meanings. Some see it as a purely instrumental tool through which people and organizations can compute particular operations (Feenberg, 1999). Others have pointed to the social impact of technology, arguing that we now live in a time defined by technology (Castells, 1996, Feenberg, 1999). Yet others such as Aral and Weill (2007) argue that IT resources, of which ICT capabilities are a part, help increase firm performance, and Pavlou and El Sawy (2010) discuss how ICT help companies achieve better improvisational capabilities.

What we can infer from this is that capabilities in any form are complex, and in the field of information systems a number of perspectives have been employed in order to address the multifaceted question of technology (as a material entity) and organizations (as a social phenomenon) in order to come to terms with how to connect capabilities to IT.

Now, few would challenge the claim that ICT has transformed the way in which we do business. It might even be suggested that ICT has become so deeply integrated with our worldview that it would be very difficult to envisage a corporation existing independently of ICT, which is something that Latour would support in so much that he argues that technology and the social are mutually imprecated and impossible to separate (Latour, 1987). A complex relation between ICT and alliances can be found in those alliances seeking to attain unique ICT expertise. This is the case with the security industry – the focal object of the present thesis – where the industry seeks to acquire not just a specific expertise but to develop, diffuse and employ an ICT capability. In such alliances, ICT attains both a broader and a more specific meaning. Broader, because ICT is not reducible to hardware, software and ICT expertise, but involve a broader spectrum of technological and organizational resources and capabilities. More specific, because it tends to be connected to already existing products or services, such as video, access control and different time management systems for employees. This would mean that on the one hand the company has prior knowledge of ICT in the hardware where they employ it, but on the other hand they seek to learn and assimilate certain knowledge by alliance building.

Purpose

The notion of a knowledge gap in the understanding of alliances and, more specifically, in alliances with the intent of achieving ICT capabilities helps us specify the following purpose:

> To develop a framework that describes and explains how alliances can be used to transfer ICT capabilities into an organization or a system.

The Case

As discussed, alliances can take many different shapes and sizes, from engaged inter-organizational exchanges over a considerable period of time to shorter, less profound relations between two individuals. The main interest of this study relates to the endeavor for one industry to acquire a particular expertise, or capability, in order to alter its business models. More specifically, it deals with the security industry's endeavor to adopt and employ new forms of information technology with the object of becoming better attuned to the new conditions brought about by ICT innovations.

Undoubtedly, the security industry has often been accused of being slow in adopting new technologies. This has been voiced by many industry experts as well as "evangelists" of the predicted ICT change. One such evangelist states:

> "We really do not supply value as it is, we need to both understand and utilize how IT can be applied to the physical security industry; where convergence is really a moniker for alliance building." Dan Dunkel, New Era Associates

While some have argued that this slowness of uptake has its origins in the fact that the security industry is based on conservative values and a more general fear towards change; others have merely argued that the industry lacks incentive. The former position, that the security industry is cautious about major transformations, is easy to understand. A failed information system might have fatal consequences for a security company. Whether at airports or at nuclear plants, security systems must under no circumstances break down. And given that new, and partly unreliable, information systems may introduce elements of risk, it is again easy to understand the industry's reluctance. Consider, if you will, a larger casino and the potential problems they face if their security and surveillance systems go down.

> Looking to a larger Casino I have visited, they have 5000 cameras where the law proscribes that they have to close the casino if something stops functioning with the surveillance resulting in losses of approximately 1 million USD per minute. (Fredrik Nilsson, Axis)

The other position, that the industry does not need to adopt new technology (based on the assumption that the industry will continue to be profitable), also has some purchase. Few industries have benefited more from the

emergence of what some have called a risk society (Beck, 1992). The events at 9/11 and the following wars have had dramatic consequences for how risk and security is now being evaluated, both on a governmental and individual level. Cynical or not, this transformation of the perception of security has had a positive impact on the industry at large.

In other words, from an institutional perspective, the industry is lacking incentives to experiment too much with technological solutions (Pierce, 2009). Yet, few security corporations deny the fact that technological innovations will have a growing impact on how the security industry carries out their operations (Pierce, 2010).

The empirical problem begins in acknowledging this tension. On the one hand the security industry needs to be cautious about adopting technology. Obviously they do not want to compromise their core business, which is to offer reliable security systems. On the other hand, they do not want to wait too long, because they know that, eventually, the industry will undergo a major transformation, and they also know that when that day arrives, they need to be prepared. In short, they need to know how to rapidly change course, when the circumstances to do so present themselves. To express this as Everett Rogers (1962) does in his book *Diffusion of Innovation*, it can be said that while the industry is reluctant to dedicate the amount of resources necessary to be "innovators", they are nevertheless aware of the mounting risks associated with being "laggards". In short, timing is as vital as indeterminable.

Studying existing alliances in the security industry, we find numerous examples of security companies working together with IT companies, such as Axis working with Niscahay and AssaAbloy working with Cisco Systems. Collaborations signal the ambition to transform the companies' business models through new technology, or at least an interest in taking precautionary action by learning more about the possible interconnection (Pierce, 2010, Weaver, 2009b). But it is hard to say how serious these engagements actually are. When security companies and IT companies appear side by side at security conferences presenting new "future" products and services, it is not necessarily an indication that they have formed a longstanding and far-reaching alliance. Surely, there are examples of serious engagements. But in many cases an alliance amounts to little more than appearing publicly on a couple of occasions, doing a joint press release of some imagined new product.

Taking the collaboration to the next level by actually introducing new products or services to the market, is a rarer occurrence.

> The issue today is that most security players are used to a lot of "pampering" whereas Techdata is an IT distributor that is geared towards slim supply chains with very low overheads and there is no room for extras in that equation. We are having a hard time creating good alliances. (Bob Shouse, TechData)

The key focus of this thesis is on these alliances. It does not merely seek to provide more empirical material to an already well-known problem, i.e. that alliances often fail (Hamel et al., 1989, Hoffman and Schlosser, 2001, Kliman and Visioni, 2002, Liker and Choi, 2004, Park and Ungson, 2001, Weiss et al., 2004). Rather it seeks to unearth the many practices and unwritten rules that pave the complex road that goes from a handshake and a nice dinner to more sincere relations with well-articulated goals about future prospects and generous budgets. As will become clear later on in this thesis, many alliances fail or simply disintegrate because of the unbridgeable gaps between the partners. Language barriers, together with motivational and cognitive barriers (Jensen and Szulanski, 2004, Szulanski, 1996), help explain this situation. For one thing, they point to the rather obvious fact that an experience of not sharing the same view of making business has negative consequences for trust, which is a requisite for making alliances work (Kale and Singh, 2007, Park and Ungson, 1997, Rottman, 2008).

The two main industries under investigation in this thesis, the security industry and the IT industry, are in many respects each other's opposites. The IT industry is known for its willingness to take risks (Zider, 1998). It is an industry that is intimately linked to technological innovations and the entrepreneur is often hailed as a hero (ibid). The language used by IT people is often technical and hard for outsiders to understand, not least managers in more traditional businesses (Ramiller, 2001). Moreover, the typical IT worker, if we think of those working in Silicon Valley and its vicinities, is often seen as liberal, democratic, non-conventional, and sometimes even nerdy (Fisher, 2008).

Turning to the security industry, we find not just very different corporations but also, unsurprisingly, very different people. The security industry has much of its focus on risk and risk mitigation in all aspects of the word (Contos et al., 2007). Furthermore the security industry has always been very closed to

outside inspection with almost every larger manufacturer offering proprietary closed systems, which is quite a difference from an open IT platform (ibid). The industry further "muddles" the water by being hard to penetrate and research on facts and figures (Contos et al., 2007, Waard, 1999).

It is important to point out already at this early stage that there are gaps, potentially unbridgeable gaps, between the security sector and the IT sector. The latter will not be given much attention in this thesis as it has been well-documented elsewhere (Ross and Weill, 2004). The security industry, however, has only received limited attention outside of the criminology field (Gill, 2007, Gill and Spriggs, 2005). It is not the purpose to carry out an anthropological study of the security industry. However, understanding the culture and practice of this industry is absolutely key in a study of the way in which they form, sustain and exit alliances. It also helps understand why many security managers are suspicious towards new technological innovations, which is why I have dedicated one chapter solely to the security industry in its own right. But the most interesting aspect of study is how security companies transfer ICT into their own systems (internal as well as product systems).

Empirically studying the security industry contributes to the current literature on alliances in a number of respects. First it brings to the surface the importance of understanding the logic, language and practice of a certain industry. Indeed, the security industry has its own idiosyncratic characteristics, and it is the assumption of this thesis that these characteristics influence the way in which they form and develop alliances with other companies. Second, the thesis pays particular importance to ICT and ICT capabilities. Many corporations, from a great variety of industries, have entered into alliances with ICT companies with the explicit intention to acquire new knowledge. Of course this process of acquiring and deploying new capabilities is complex, time-consuming and cumbersome (Ramiller and Swansson, 2003, Swansson and Ramiller, 2004, Kalling, 1999). By understanding the relation between more "traditional" companies and ICT companies, this study will contribute to the large body of literature by focusing on the process of adopting new technological innovations and making them useful in a corporate context. The third contribution of this study is that it critically evaluates the concept of alliances in relation to how they are used.

Alliances and ICT Capabilities

The concept of alliances has received considerable attention in the study of organizations and management strategy and could now be considered a distinct area of investigation. One of the reasons to this popularity is the slow but steady disintegration of corporate boundaries (Afuah, 2003, Daboub and Calton, 2002). Where the corporation begins and ends is less certain in the firms of the 21st century than in the traditional firms just a few decades ago. They were typically based on a stable identity and distinguished by its set of suppliers. Outsourcing, joint ventures, virtual value chains, eco-systems, etc. have all become integral parts of the contemporary landscape of management (Child and Faulkner, 1998). One could even claim that the inability to continuously renegotiate the boundaries of the corporation is a sure and steady way to bankruptcy (Prahalad and Hamel, 1990). Indeed – without the ability to innovatively collaborate within and across industries – corporations fail to meet the demands for rapid change and renewal of their business model (Grant and Baden-Fuller, 2004).

This thesis aims to study alliances from a broad perspective, with particular focus on ICT. To do so, I wish to retain an open interpretation of the term alliances. What I seek to avoid is a rigid and ready-made conceptualization of the term that could either wrongly confirm an irrelevant relation as an alliance, or falsify an alliance relation that would have been interesting to study. After all, the term alliance is a theoretical abstraction aiming to reflect something that takes place in the world of business. In this sense, it is more important to illuminate all possible aspects of alliances, rather than delimiting the study to a preconceived conception of what alliances are. This chapter will go into some detail on alliances both in terms of what types of alliances there are and what their intended results are as well as what theoretical backgrounds predominate the alliance literature. Without getting ahead of myself, the definition of alliance which I have found useful in my research is as follows:

> Collaboration between two or more parties aimed at reaching common and individual objectives.

This chapter is dedicated to the concept of alliances, and particular attention will be paid to alliances that have the aim of acquiring ICT capabilities. Consequently the second most central concept of this chapter is ICT capabilities. I will open with a general description of the term alliance, including a contextual account in which alliances are positioned within a wider context of various forms of other inter-firm collaborations, such as joint ventures, mergers, acquisitions, etc. After this general introduction, I will elucidate a number of different theoretical perspectives. They all seek to underscore various critical aspects in relation to alliance building, including trust, cognition, intent and general strategy. I then proceed to look at how different factors influence alliances, discuss some different classifications of factors, and finally I propose a tentative framework to build alliance capabilities. My framework takes seriously the question of ICT and seeks to address the question of alliances from the perspective of information systems. The present study differs from previous studies that aim to connect alliances and capabilities in that it does not confine itself to only touching on the subject of technology.

The following chapter will be divided into three major subchapters: (2.1) different types and results of alliances; (2.2) theories on alliances and (2.3) factors influencing the process of alliances in regards to ICT.

Types and Results of alliances

Attempts to typologize the term alliance abound. Kuglin and Hook (2002), Goerzen (2007) and Gulati (1995a) are some authors that have tried. Here we find six different types of alliances: *Sales alliance*, *Learning or Knowledgebase alliance, investment alliance or equity-based partnership, resource alliance & international alliance as an organizational form*. Yet another way of categorizing alliances is offered by Das and Teng (2000), who propose that there are only four relevant types of alliances: *joint ventures, minority equity alliances, bilateral contract based alliances* and *unilateral contract based alliances.*

For sure, there is a whole array of different types of alliances, including joint ventures; minority/majority equity alliances; precursor to M&A (Mergers and Acquisitions); different R&D constellations; joint production; joint marketing; supplier and/or distributor alliances, and so forth. For instance,

Park and Zhou (2005) present what they call the *competitive dynamic alliance* approach, which can be described as a type of alliance that seeks to outcompete other firms. More particularly, by forming specific alliances, a company can negatively impact its competitors' results insofar as they prevent them from forming alliances themselves. Maybe the most conspicuous example of this blocking strategy is how the North Atlantic Treaty Organization (NATO) asked former Soviet Union member states to join NATO. It was done in two steps. In the first step, in 1997, the Czech Republic, Hungary and Poland were invited to join NATO, which materialized in membership in 1999. In the second step, in 2002, Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia and Slovenia were invited to become members, and this materialized in membership in 2004[6]. This is a classic example of preventing a competitor, in this case Russia, from forming an alliance with said nations.

A rather different way of approaching alliances is to think of them as a way of doing *portfolio management* for multinational businesses (Simonin, 1997, 1999b). From this perspective, alliances are primarily about creating a carefully balanced mix of different types of alliances, which can be seen as an allegory to spreading one's risks by placing stocks and bonds across a number of markets. One example of portfolio management of alliance that has direct application to this research is the Axis partner programs. Axis has a mix of sales, engendering, technology development and application development alliances. This four-tier mix of alliances is meant to ensure more loyal and long-term partnerships.

Far from the diversity of *portfolio management*, Daboub (2002) proposes *vertically integrated alliances* as a form of alliance, which concentrates on how an organization might internally integrate external knowledge. This approach is often bureaucratic, cumbersome and cost-intensive. On the other hand, the corporation does not expose itself to the market, and in that particular manner it secures its unique resources and capabilities from competitors. A case in point is the auto industry, which for a considerable time owned everything from mills to the actual car dealerships (Afuah, 2003, Drucker, 2008).

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6 www.nato.int

Another, fairly similar, type of alliance is the *knowledge-based* alliance. Like *vertically integrated alliances*, this form of alliance is based on some restrictions with regard to openness. Yet it seeks to go beyond a merely one-directional relation in that it involves a process of knowledge transfer, such as gaining technological know-how or adopting intangible resources (Behrend, 2006, Hughes and Weiss, 2002). Moreover, Gulati (1995a) argues that this type of alliances might, if being repeated, transform into *joint ventures, R&D agreements, technology exchange* as well as *direct investments* and different *licensing agreements*.

Fitting alliances into a business environment

In an attempt to understand where the alliance fits into the business environment, we might imagine a line that stretches from the perfectly integrated hierarchical company to the perfect market where information flows freely and there are no barriers to entry. Somewhere between these two extremes alliances reside, or even glide on an imaginary line, depending on type of alliance and intended output of alliance. I have tried to illustrate this point in figure 1 below.
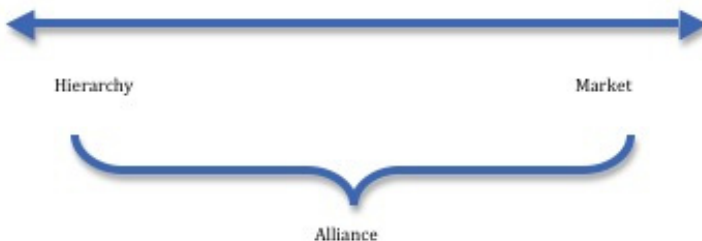

Figure 1
Alliances' position in the business environment

Having visualized alliances' possible position in the business environment, it would behoove us to also discuss alliances from a personal or individual perspective. Ouchi (1979) argues that cooperation between a collection of

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individuals lays at the heart of an alliance challenge[7]. Individuals more often than not only share moderately overlapping objectives.

> The problem of organization is the problem of obtaining cooperation among a collection of individuals or units who share only partially congruent objectives. (Ouchi (1979:833)

What Ouchi describes is basically that individuals have their own agendas that often are not completely in line with the organization's vision. With the widespread access to ICT, the barriers to integration have been radically lowered; the flow of information has become easier to access. This would indicate that a corporation might, in the best of cases, receive the benefits of vertical integration without actual integration. However, it could also mean that the market has become more transparent, making diversification through long-term strategic alliances more sensible than internal control of all parts of production (Afuah, 2003, Daboub, 2002, Daboub and Calton, 2002).

Alliance terminology

Unsurprisingly, the term alliance can include a series of different collaborations. What two collaborating corporations choose to call their engagement differs, and is not necessarily an important question for them to consider. After all, it is the actual outcome of the collaboration that matters, not how the collaboration should be defined. This has also been documented in the academic literature; as for instance Spekman et al. (1998) have pointed out, there is a gap between the theoretical understanding of alliances and the actual practice of alliances, especially with regards to alliance management. From a theoretical and academic viewpoint, however, the question of definition appears more important. In order to clarify the broad span of inter-organizational collaboration, we need to distinguish between a number of definitions. The attempts at clarifying the concept are numerous and encompass many disciplines as wells as layers of structures within organizations. In the study of Bengtsson et al. (1998) – to name one – a broad meaning of the term alliance is noted, suggesting that alliances could be

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[7] Ouchi does not use the word alliance, but rather discusses a team of individuals that collectively produces some output, but this falls within my definition of an alliance.

fruitfully studied on the basis of their formalization. To them, an alliance is more formalized than imaginary organizations and industrial networks, but less formalized than mergers and acquisitions (see Figure 2 below). Figure 2 indicates the broadness of the concept alliance. While some have assumed a broader definition, encompassing everything from imaginary organizations to mergers and acquisitions, others have been more specific (or reductionistic), claiming that alliances need to be confined to formalized strategic alliances.
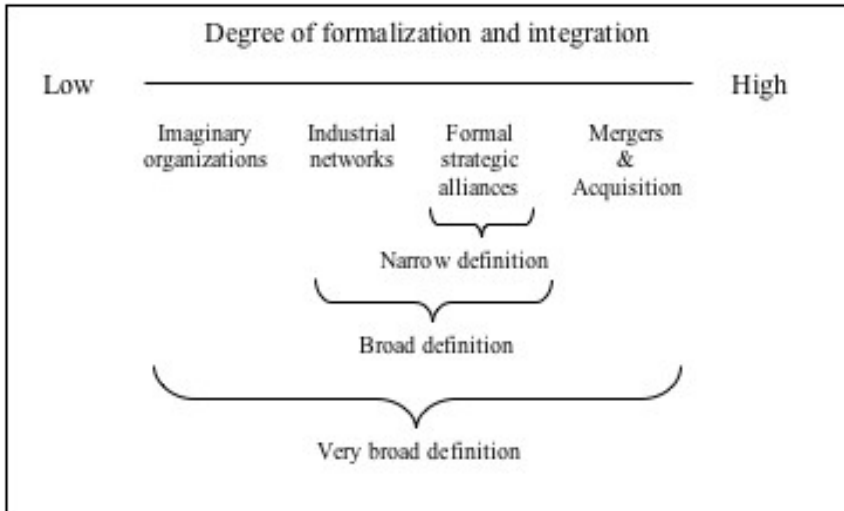
Figure 2
Degree of formalization around the concept of alliances. Bengtsson et al. (1998).

One such attempt is made by Koza and Lewin (1998) in their seminal article on alliances where they suggest a rough taxonomy of the field of alliances. Noting the interest in alliances from a wide spectrum of academics (including economists, strategic management scholars, organizational theorists, sociologists, etc.), they propose six types, or themes, of alliance literature: (1) studies on inter-organizational relationships and networks; (2) studies concerned with alternatives to alliances, often based on transaction cost theory; (3) the historical, structural and functional study of alliances; (4) issues of incentive, including trust and opportunism; (5) the study and analysis of success stories, focusing on particular key success factors; and (6) the proposition of guidelines for improved management.

The focus of this broad research has also undergone some transformations over time. In their 1998 article, Spekman et al. suggest that research up until that point had mainly been concerned with the general questions of the nature of strategic alliances and the problems associated with forming alliances. In their mind, the future of alliance research should be more practically oriented, asking questions about the problems associated with alliance management and how these problems could be overcome through implementation. This puts more focus on the alliance manager and *why* alliances succeed or fail.

Roughly a decade after making this remark, we can see that Spekman et al. (1998) were not too far off the mark in their prediction. A large number of studies concerned with failure and success have appeared in recent years. For instance, Hoffman and Schlosser (2001) focus on specific success factors for small- and medium-sized enterprises (SMEs) wanting to engage in alliance building. They advocate trust as a "soft" factor for success, where "hard" factors include governance of the alliance. Planning and preparation for strategic compatibility are other factors that are argued to be of great importance. Even more interesting is their argumentation that you can, and should, prepare[8] as much as possible, but in the end the alliance as such with its partners and values needs to develop and evolve over time. Further work from Hughes and Weiss (2007) argues that alliances pose special challenges that make traditional management practices irrelevant and hence they put forward a model that argues five main factors: (1) developing the right working relationship, (2) creating metrics to measure, (3) embracing differences, (4) enabling collaborative behavior and (5) managing stakeholders. According to Hughes and Weiss (2007), organizations need to adhere to these factors if they want to have any chance of successful alliances.

Alliance results

A common apprehension about alliances is that they rarely live up to the expected outcomes (Feenberg, 1999, Simonin, 1999a, Weiss et al., 2004). While it might be true that many alliances fail, it is important to remember that alliances involve a whole range of expected outcomes. Some expected

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8 In their discussion on preparation, the authors refer to careful planning around the alliance as well as preparing partnerships thoroughly in order for alliances to work.

outcomes are easy to articulate and measure; others are less so. Among the many desired results of alliances we find mutual product development; synergy effects through employing new sales channels; assistance in training and developing workforce and knowledge sharing by gaining access to new networks (Inkpen and Tsang, 2005, Simonin, 1997). Another common motive for engaging in alliances – and this applies primarily to larger corporations – is to acquire innovative and entrepreneurial capabilities often found in smaller start-ups. For the smaller company, the ability to rapidly gain access to the world market is an attractive opportunity. Companies seek to reduce risk along with capital investment costs, and alliances often appear as an effective means towards that end (Doz and Hamel, 1998). However, alliances often entail a number of unintended costs that are hard to predict or measure. In this sense, alliances do not necessarily result in reduced risk and lower capital investments. And even in the event of such outcomes, the unexpected costs may overweigh the gains. As Park and Zhou (2005) make clear, there are potential costs associated with *not* entering an alliance as well as entering one. In the latter case, the corporation is compelled to develop and make use of alliance capabilities, capabilities that can be as costly to develop as to sustain (we will come back to this by the end of this chapter). This is related to the notion that corporations often suffer from an inability to effectively communicate internally, as described by among others Szulanski (1996). This has a negative impact on communication between firms and as such results in higher transactions costs which further drives costs of alliances (Park and Zhou, 2006).

In order to provide a more comprehensive picture of alliances, I will, in the following section, point to a number of interpretations of alliances, ranging from a variety of perspectives.

Different theoretical perspectives on alliances

Thus far I have concentrated on understanding what types of alliances there are and what results we can expect from alliances. In the following subchapter (2.3), I will look to the predominant factors that are argued to influence an alliance. However, before the value of potential factors can be understood, we

need to understand something of the theoretical background leading up to the knowledge we have of alliances and Interfirm Collaboration today.

Different theoretical perspectives provide, as has been mentioned before, alternative definitions of alliance terms. Whereas strategy theory often draws on cognition theory to explain various empirical phenomena (e.g. Prahalad and Bettis (1986)), other fields – like for example sociology and some versions of organization theory – are more prone to explain empirical phenomena in relation to culture (Alvesson, 2002).

To provide a richer and more nuanced picture of the factors described in the next section, I will now very briefly describe a number of theoretical perspectives that have influenced alliances theory as it is today. Each of these perspectives presents its own definition of key factors such as learning, trust and intent. Moreover, some theoretical perspectives are less interested in some issues and more interested in others. A case in point is cultural theory, which unsurprisingly spends more time and effort to explain cultural factors than strategic ones.

The theoretical perspectives I now wish to present are the following: agency theory, culture theory, organizational learning theory, knowledge theory and transaction cost theory. These theories are carefully selected. They have been included on the basis of either presenting rich theoretical and empirical material on the subject at hand (i.e. alliances), or on the basis of frequently appearing as theoretical models in alliance theory. Transaction cost theory is an example of a theory that fulfills both of these requirements. First, it is a theoretical field that has been interested in the possibilities of lowering transaction costs through inter-firm collaboration. In this way alliances appear as a relevant and popular empirical example, employed to illuminate aspects of transaction cost theory. Second, transaction cost theory is often employed (alongside other theoretical perspectives) in alliance theory. Here, transaction cost theory is one among a number of relevant explanations for why and how alliances emerge and develop.

In contrast, cultural theory is not a field that is particularly interested in alliances – at least not if we by cultural theory mean what is usually labeled cultural studies. In this field, culture is often treated from a sociological, political and philosophical perspective with particular focus on cultural outputs like music, literature, films, etc. (Eagleton, 2000). However, culture

is nevertheless a reappearing factor when explaining the nature of alliances – which is why I have chosen to include it here.

Organizational Learning theory is yet another perspective that is intimately connected to alliances. In this perspective we find a series of theoretical explanations of why organizations, when collaborating in the form of alliances, fail to learn or employ what they have learnt. Authors such as Teece et al. (1997) and later Teece (2007) have worked on how organizational learning and managerial processes are paramount in order to be able to both identify and utilize business opportunities. In later years Meijer et al. (2012) have connected learning to alliances diversity. Regardless of which angle you want to pursue, it is clear that learning and alliances are interconnected.

Knowledge theory is following on from the learning theory explanations, although it is concentrating more on the process of adopting and making use of knowledge. Barney (1991) and Wernerfelt (1984) have worked with knowledge from a resource based view, Prahalad and Hamel have approached knowledge from a competence base and Grant (1996b) from jet another aspect – namely that of having a knowledge base. Both knowledge- and learning-theory are broad, and there is no room to cover all aspects that pertain to alliances, but I have aimed to include the pertinent factors for my framework. In aspiring to explain – or even motivate the framework – we will now turn to agency theory.

Agency Theory and Alliances

According to Hill and Jones (1992), agency theory has been primarily concerned with the relationship between managers and stockholders. This might be a legacy from its origin within the economic field as described by Ross (1973). During the mid-eighties the fields of management and organization started to explore how agency would fit into their field. Agency theory advocates a stance that firms should be viewed as similar to a nexus of loosely defined contracts, where the key idea is to organize the relationship

between the "principal[9]" and "agent" in order to make the flow of information and risk-bearing costs as efficient as possible (Eisenhardt, 1989a, Hill and Jones, 1992). The principal though, or cornerstone, of the agency theory is that the interest of the principal and agent diverge. The diverging interests create a need for the principal to control the agent with different forms of incentives and monitoring activities thereby limiting opportunistic behavior. This monitoring and control is costly, and in worst case scenarios the market collapses because of the "dead-weight" loss caused by mutual distrust (Noreen, 1988).

Another way of describing alliances is as "*informal relational contracts*" (Grant and Baden-Fuller, 2004) or as "*extended barter agreements*" (Mody, 1993), where the idea is to obtain knowledge and/or information from the alliance partner. The main idea from the Agency Theory is to determine the most efficient way to govern the "principal" and "agent" considering factors such as self-interest in individuals; risk propensity and conflict solution within and between the organizations and finally the handling of information as a commodity (Eisenhardt, 1989a). These factors are called agency hazards and they indicate potential problem areas.

Reuer and Ragozzino (2006) also argue that agency hazards influence alliance decisions. It is further argued that firm-level theories have been neglected to a large extent in alliance literature, and they argue this fact as indicating a lack of understanding of the underlying reason to alliance expansion in the first place. Research within the alliance literature to date has identified many of the positive aspects of alliance building. Examining alliances from an Agency perspective could, according to Reuer and Miller (1997), partly explain why firms' alliance portfolios grow based on selfish behavior on managements' side, which is contradictory to alliance theory as offered by for instance Anand and Khanna (2000) and Kale et al. (2002). The agency perspective questions if managers' interest are really aligned with shareholders' interest. The idea is that the firms "internal" alliance portfolio might be aligned to managers' incentives, rather than stockholders' or other stakeholders' interest.

9Agency Theory or the Principal-agent dilemma is when an individual(s) called "principal" hires another individual(s) called "agent" to perform a task or service and also delegates decision-making power to the agent. This can then create a situation where principal and agent act out of their own self-interest and do not conform to each other's interest, creating a "dilemma" or problem.

Agency theory's main point is that firms' decision to enter into an alliance is sensitive to the agency hazards that exist due to the separation of ownership and control. As such, agency theory is concerned with divergent interest between principal and agent (Eisenhardt, 1989a). The starting point of agency theory might be hard to superimpose on alliances, but the factors that bring about agency cost are just as viable within alliances. The fact that it is often hard to accurately pinpoint who is the principal and who is the agent within an alliance, in my opinion, can be related to two main points: a) the idea that alliances are to be mutually beneficial to all involved parties and b) the fact that principal changes in the duration of an alliance make it hard to not have divergent intents. Park and Ungson (2001) touch upon this when they describe both coordination costs of alliance and the intrinsic cost in aligning operations outside and within the organizations involved in alliances (i.e. the agency cost).

Looking to alliance literature that uses agency theory, we see that the divergent interest, or intent, is a concern, but also issues of power/control, ownership and coordination. In agency theory information can be seen as a commodity, where agency hazards are controlled by ethical sensibility and consciousness. Interpersonal and small-group communication can also develop into personal agency, i.e. response-ability and dialogue, creating trust and alliances (DeTurk, 2006).

Culture Theory and Alliances

Cultural norms and values can facilitate as well as inhibit the formation of trust. Trust forms through a cumulative process that is based on behavioral control aimed at getting the target to do what the trustor wants. Doney et al. (1998) show that with a set of shared norms and values, i.e. culture, the chances of building trusting relationships increase. Relationships and trust are key ingredients within alliance building (Doney et al., 1998, Tomkins, 2001). Culture in itself moderates the relationship between cognitive processes and trust, meaning that within a culture that is known for a certain behavior, the fulfillment of said behavior will generate little cognitive information on targets' actual trustworthiness. The fact is that we see more and more international and cross-national alliances, generating a need to understand how culture and trust interact to create successful alliances (Becerra et al., 2008, Das and Teng, 2001, Gulati, 1995a).

Of course another important aspect of culture exchange and building trust are different forms of social exchanges. Social exchanges play a key role in inter-firm alliances. Inter-firm alliances are often based on generalized exchanges and they are susceptible to free riding and therefore require a greater amount of trust. The creation of cultural mechanisms – within or outside of the alliance – greatly reduces the need for coordination and control since a system of shared values and beliefs is in place. This then means that effective collaboration depends on eliminating the most disruptive sources of cultural differences, be they organizational or professional by controlling exchange processes, building trust, resolving conflicts and coordinating resources. By having similar cultures on all levels of the alliances, firms will lower transaction costs since the need for monitoring and control is greatly reduced (Doney et al., 1998).

It is important to understand that differences in national culture can disrupt both learning between partners and damage the collaboration forthright (Lyles and Salk, 1996, Parkhe, 1991). Park and Ungson (1997) argue that differences in national culture is a critical component of complementarities when studying cross-border alliances. Nationality in itself cannot fully encapsulate cultural values, but national boundaries delineate the social, political and legal milieu that the individuals and their firms operate within. National culture in itself cannot explain failures in knowledge sharing according to Sirmon and Lane (2004). We also need to factor in organizational culture when discussing any alliance's success and failure according to Pothukuchi et al. (2002). This is something Clegg et al. (2002) also argue with the help of Foucaultian neo-liberal values: creating a common culture with shared practical consciousness will help the alliance succeed. They further the argument by discussing active consent as a new way of thinking around controlling subjects, and they go on to argue that this can be seen today in different alliance contracts. Their conclusion is that individuals within an organization and the organization itself can choose to create a common culture and a shared practical consciousness which will help the alliance succeed.

Sirmon and Lane (2004) continue by arguing that professional culture cuts through organizational boundaries, which would indicate that it is a stronger influencing factor than the organizational culture that in turn is stronger than national culture. This would suggest that similarities between organizational cultures increase alliance partners' learning, satisfaction and effectiveness in

their interactions. You need to assess both partners' organizational culture as well as the potential teams' professional culture if you wish to have a successful alliance.

Organizational Learning Theory and Alliances

Using Kale and Singh (1999) as a starting point, differences in learning from alliances can be claimed to reside in the organizational processes used to accumulate, codify and share knowledge. Taking this notion to some other organizational learning authors who have tried to understand the boundaries of learning within alliances, we see that Teece (2007), Teece et al. (1997) identify organizational learning and managerial processes as paramount for identifying and utilizing opportunities. In the earlier work by Argyris (1976), the ability to identify mistakes and their correlation to the desired state of performance are recognized as key factors of the double loop learning, as is managerial control. McGrath (2001) looks to how managerial oversight enables different forms of exploration within the organization. She concludes that the most fruitful learning does not always follow the intended path and that just realizing this point might be as important as the planning and control process as such. Cohen and Levinthal (1990) developed the idea of learning to learn, where it at the firm level is a complex function dependent on how the individuals within the organization behave or operate. Individuals' knowledge and experience is hard to disseminate within the firm due to heterogeneity. Cohen and Levinthal (ibid) also point to the possibility of path dependency, where a firm that has learnt how to learn will continue to do so at an increasing rate. Anand and Khanna (2000) argue that the importance of learning increases with the difficulty in specifying the processes or knowledge in question, where March (1991) advocates that you need an organization that can make the most of both organizational and individual learning.

Cohen and Levinthal (1990) use the term absorptive capacity to describe an organization's ability to recognize, value, assimilate and apply new information to commercial ends, which could be described as different forms of interfaces that help the company relate to its environment. Of course alliances are just another form of interface that the organization can utilize. This process requires knowledge that needs to have been assimilated over time, and the type of knowledge determines how easy it is for partners to internalize and assimilate the knowledge offered. Is the knowledge explicit or

tacit, e.g. electronic data versus a personal experience, is it easily interpreted, e.g. common mathematical formulas versus cultural discourse, and is the information easily absorbed, i.e. what skills and resources are needed in order to understand and make use of the data offered in the alliance (Hamel et al., 1989).

Learning is a factor that is often referred to as being important in alliances (Inkpen, 2000b, Kale and Singh, 2007, Parkhe, 1991), but looking to the alliance literature there is no empirical evidence on how and when we need to learn, only that it is important according to among others Anand and Khanna (2000). Their discussion builds on the notion that "*alliances are incomplete contracts between firms*", indicating that detailed interactions are generally hard and fully pre-specified lists of issues seldom exists. They argue that there is a difference between learning within an alliance, as described by authors such as Dyer and Singh (1998) and Doz (1996), and learning from having alliances, as described by for instance Meijer (2012) and Schilke (2010). Returning to Anand and Khanna (2000), the thought is to focus on the ability of a company to learn to learn from alliances, i.e. get a capability in the words of Cohen and Levinthal (1990). Learning is not only about how the individual learns, but more so about how the company harnesses the individual learning and makes it into a value for the organization at large. Larsson et al. (1998) grapple with this issue in their framework. It considers the tradeoffs between internal learning and being a good alliance partner by sharing knowledge, which ultimately invites opportunistic behavior.

Of course there can be no learning without actual knowledge, and Winter (2000) claims that organizations need multiple sources of knowledge to guide learning and, more importantly, to understand when learning has been a success. The satisficing analysis of learning illustrates that our current knowledge only shows us where learning on a certain level stopped. Winter comments:

> What explorers discover is not an edge but a gradually thickening fog bank. (Winter, 2000:994)

We understand that learning and knowledge does not end but tapers out into unknown areas, and I think this is a very adept way of saying that aspiration to learning will increase an organization's ability to utilize both knowledge and opportunities that come their way. The extension of that reasoning is that

experience and practice are important factors to consider when discussion alliance capabilities. IT ties in well, since the more alliances a person or an organization engage in, the better it or they get at them. More importantly, work is continuously needed on current alliances as well as on building new ones to achieve real success (Kale and Singh, 2007).

Following the arguments of Khanna et al. (1998), it is reasonable to expect firms to develop organizational routines that are optimized for the pursuit of learning. One problem that they identify is that managers often fail to realize that pay-off models are contingent on information that, in its turn, is dependent on for instance the relative speed at which partners will learn from each other. Hence the information cannot be known in advance but only guessed at. Of course the speed at which the individual alliance firms learn also changes the opportunity cost of further learning and extending the alliance. This means that for optimal decision making the parties within the learning alliance must incorporate new information as it is made available and use it to revise behavior and learning investments accordingly.

Maybe one of the more accessible examples of organizational learning and alliance building can be found in the automotive industry. Japanese car manufacturers went into the US market early to learn how to develop and sell cheap quality cars that conformed to the needs and want of the US customer base. They were so successful that the "big three[10]" got congress to pass legislations against certain import cars, which led to further alliances being formed in order for companies such as Toyota, Mitsubishi and Suzuki to be on the inside of this legislation. They achieved that by having joint plants with US manufacturers. These alliances in different forms and constellations are still ongoing 40 years later.

In summary, the firms' or alliances' ability to recognize, value, assimilate and apply new information to commercial ends is classified as absorptive capacity. Absorptive capacity is one part of learning but not the only one. The firms also need to understand when to explore and when to exploit new information. This is typically learnt through experience but also by codifying routines, policies and procedures in order to make tacit knowledge more explicit. By allocating resources to, and declaring the intent with, an alliance,

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[10] The "Big Three" or the "Detroit Three" refers to the three largest car manufacturers in North America, i.e. Ford, General Motors and Chrysler.

the firm can create the possibility for management to share information and gain trust, which also facilitates learning and knowledge assimilation.

Knowledge-based Theory and Alliances

Considering the origins of knowledge-based alliance theory, it can be argued that it has roots in three different schools of theory. Wernerfelt (1984), one of the pioneers of The Resource Based view of the firm, maintained that the organization needs to possess both specific resources as well as competencies and capabilities in order to position itself. Barney (1991), taking the argument further still, claimed that resources must by definition be scarce, valuable and hard to imitate, i.e. durable in the long run (this will be discussed further in the following chapter). During this time Prahalad and Hamel (1990) started discussing core competences of the firm, arguing for a competence base instead of a resource base. The third theoretical school is represented by Grant (1996b), who argued that we need to understand firms from a knowledge-based perspective.

Looking to knowledge from an alliance perspective, Teece (1998) argues that little – or no – consensus exists regarding knowledge's relationship to alliance success. However, many scholars have worked from the premises that knowledge is the fundamental source for competitive advantage (Grant and Baden-Fuller, 2004, Inkpen and Tsang, 2005, Kogut, 2000).

> Ultimately to know is to be able to take part in the process that makes that knowledge meaningful. (Spender, 1996:59)

The challenge for managers is to identify knowledge within the firm and to understand if the knowledge processes produce public or private goods. Understanding the meaning of the knowledge process allows you to estimate a form of value (Spender, 1996b). Grant (1996b) argues that knowledge resides within the individual members of the firm, and hence the primary role of the organization is to apply this knowledge rather than to create knowledge. Nonaka (1994) in turn claims that that organizational knowledge is created through a continuous dialogue between tacit and explicit knowledge, where the individual develops new knowledge, but organizations help the individual to develop and mature the knowledge. This implies that organizations need to have both the ability and understanding to transfer knowledge internally,

which is something Szulanski (1996) describes as internal stickiness. He thereby builds on the work of Von Hippel (1994) who discussed "sticky" knowledge.

By relating the knowledge field to alliances, Doz (1996) shows that alliances are a very strong contributing factor to transferring knowledge between companies (Doz, 1996). It goes without saying that to obtain a sustainable competitive advantage is crucial for any firm. Strategic alliances are one way of achieving this advantage according to Culpan (2008). By using alliances to gain different knowledge assets, a sustainable competitive advantage is obtained.

> …no firm holds all the necessary knowledge resources to produce goods or services regardless of its size and financial capabilities. (Culpan, 2008:97)

Kogut and Zander (1992) argue that firms are better than the market in sharing and transferring knowledge, where firms learn new skills by recombining their current capabilities. Teece et al. (1997) second this opinion in so much as they claim that alliances can be used as a filter, where partners help each other find dysfunctional routines and blind spots in order to improve knowledge transfer. This is an interesting claim that Mayer and Teece (2008) evolve further in their work on how a jet-engine manufacturer uses alliances in order to increase both learning and knowledge transfer between buyer and supplier. On a similar path Inkpen and Tsang (2005) worked on how different dimensions of social capital within networks can influence the transfer of knowledge. In their model they use three dimensions (structural, cognitive and relational) to link how social capital dimensions help or hinder knowledge transfer within different networks, e.g. alliance networks. This would indicate that the firms' social relationships are used as building blocks for expansion, and that prior actions affect how your future actions will work out. In other words, the firm's cumulative knowledge dictates available options for the firm (Culpan, 2008, Grant, 1996b).

There are numerous ways of approaching alliances' impact on knowledge transfer. Stepping away from the social dimension, there is the above mentioned resource based perspective developed first by Wernerfelt (1984) and then by Barney (1991). Its basis is the concept that the organization needs resources that are scarce, valuable and hard to imitate. Applying this to alliances, we can envision a situation where alliance partners either need or

can supply tacit knowledge that, despite being ambiguous and complex in nature, is still valuable. Szulanski (1996) and Simonin (1999a) argue that the knowledge mixture, i.e. the tacitness, ambiguity and complexity, will influence the ease of knowledge transfer between alliance partners. More complex knowledge assets will be harder to transfer since they require more from the firms' alliance management capabilities (Rothaermel and Deeds, 2006).

The fact that alliances are aimed at acquiring some form of resource means that they lend themselves well to an analysis within a resource based theory. Eisenhardt and Schoonhoven (1996) found two specific instances where firms want to align based on either a need of resources or on a situation where a firm has valuable resources to share. One interesting example of this is the partnership between Sony and Ericsson. One alliance partner had a solid technological knowledge and patent-base around building mobile phones, and the other alliance partner had a solid customer-base and knowledge of both design and sales of mobile applications. They joined forces in 2001 and one decade later, in 2011, they parted ways in an amiable way. It can be argued that both parties had by this time gotten out what they could of the deal, with Sony retaining the mobile phone production and Ericsson focusing on networks building.

I would claim that the Resource Based View looks to firms as collections of resources that combined gives firms capabilities that should be valuable, hard to imitate, hard to transfer out of the firm and hard to substitute. Ideally the capabilities should also be as diverse or heterogeneous as possible without incurring additional costs (i.e. transaction costs). This in turn puts pressure on alliance partners in so much as the willingness to share knowledge will be important. Trust and Risk aversion are two important factors that are said to influence partners' willingness to share knowledge. This implies that alliance partners need to offer tacit as well as explicit knowledge of ambiguous and complex nature in order to minimize risk of knowledge theft. In the same instance complex knowledge is harder to transfer, i.e. it requires a higher level of alliance capability between partners. In any event the existence of social capital between the alliance partners will facilitate knowledge transfer. However depending on the receiving partners' absorptive capacity, the speed at which knowledge can be assimilated into learning will vary.

In summary it can be argued that to make knowledge meaningful we need to know how to use it in different processes, where alliances are an example of one important process. Just as with learning theory, there are a number of schools on how to best approach knowledge theory, but they are all more or less connect to alliances.

Transaction Cost Economy Theory and Alliances

Coase (1937) started defining the firm in relation to the market by assigning transaction costs to coordination efforts, whether they be internal or external. The starting point is that in a perfect market there would be no need for a firm, hence we need to explain the existence of the firm itself. The end-result is that there are transaction costs in the open market that the firm can avoid by internalizing many transactions. Basically the firm will continue to grow until the external transaction costs are lower than the internal ones.

There are a number of factors that can be said to influence transaction costs. Nobel Prize winner Oliver Williamson discusses five main topics of Transaction Cost Economy (TCE). Firstly, we have opportunistic behavior, which increases the fewer actors you have in the market space. Secondly, Williamson points out that individuals are limited rational, which implies that with greater uncertainty our transaction costs go up. Thirdly, uncertainty in the market will influence the transaction cost. The fourth point relates to Specificity where specialized products will increase the transaction costs. Finally, the fifth factor that is said to influence transaction costs is Frequency of transaction, where higher frequencies of transaction lower prices.

What is interesting about TCE in the context of this thesis is how it affects alliances. Over the years the risk of opportunistic behavior has often been cited as an important cost driver, but in recent years authors such as Das and Teng (2002), Doz (2002 and 1996), Noreen (1998), Park and Ungson (1997) and Ouchi (1980) have started questioning if there are other factors that can remedy fully opportunistic behavior. Trust, culture and ethics have been proposed as possible remedies. Furthermore Hill (1990) suggests that alliance partners' cumulative past behaviors will work as a proxy for knowledge of future opportunistic behavior. These factors are also strongly influential in alliances, which will be discussed further in the next chapter.

Achieving and maintaining a relationship where partners have a reputation for trustworthiness is neither without cost nor a spontaneous process (Parkhe,

1993). The fact that there are many uncertainties in the market due to factors such as changing environments, behavioral uncertainties in partners and bounded rationality creates fresh transaction costs according to Williamson (1983). This claim receives further support from an alliance perspective since alliance partners have been found to be more opportunistic in volatile markets (Luo, 2006, Parkhe, 1993).

Williamson (1985) advocates a need for a governance structure that matches and controls the transactions. There are basically three forms of governance mechanisms within TCE according to Judge and Dooley (2006): 1) Market governance, i.e. price, 2) Intermediate governance, i.e. contracts and alliances, and 3) Hierarchical governance, i.e. managers' governance within the boundaries of the firm.

Contrary to what transaction cost theory as well as some alliance literature advocates, Eisenhardt and Schoonhoven (1996) argue that in highly uncertain situations, firms actively seek out alliances. They do not try to avoid them since the potential benefits of the alliance outweigh the inefficiencies in the transaction cost. Support is given by Zollo et al. (2002) who claim that alliances provide stepping stones in uncertain investment contexts. As an example the creation of new technology is often a risk venture where the commercial viability is never clear and where technological standards are based on politics and alliances rather than on best-of-breed solutions. One such example that Eisenhardt and Schoonhoven (1996) discuss is the VHS/Betamax video recording format, where Betamax was the superior format, but VHS won the standards war, largely due to alliances and legitimacy.

To summarize transaction cost theory, its focus is on minimizing the costs of transactions and production derived from coordination activities (internally as well as externally) and from enforcement of contracts. Costs are typically lowered by internalization of resources. Alliances offer a middle way between high transaction cost and internalization when the cost of internalization is not high enough to warrant vertical integration. The theory thereby contrasts with the RBV, where the focus is on maximizing value out of resources, and the goal is to find optimum utilization of the firms' resources by combining it with other resources that might be owned, controlled or borrowed by the firm.

To conclude this section, the idea of examining the different theoretical perspectives was to give insight and understanding on how I have sieved out the factors that I believe influence alliances. This was done to give a richer and more nuanced picture of the factors to be investigated in further detail in chapter 2.3 or, if you will, a motivation to why certain factors were picked above others. The five different theoretical perspectives presented in the prior section all discuss factors that are influential on alliances, but it is often hard to separate one factor from another as being the specific one at work. During the examination of the alliance literature, I tried to create a more visual representation of how the different theories influence each other over seven different fields. In the end the graphical illustration proved quite complex with many overlaps. The work in itself helped to create a better understanding of the subject, and the resulting figure is given in Appendix A.

Factors behind alliance building

It is certainly important to note the fluid and multiple meanings of the term Alliance. At the same time it is crucial not to make these categories permanent. I have already alluded to the difference in language use between academia and practice as well as the differences in terminology/jargon within these two categories. What practitioners wish to call alliances can sometimes be a hyperbole. And what academics call alliances might only poorly reflect the actual practices taking place between two or more agents. Whether an alliance thrives in secure and trustful territories or in more volatile and unexpected ones is determined by a number of factors. What we do know is that alliances are always formed with a purpose, whether this purpose is well articulated and sincere, or lucid and half-baked. From a strategic management perspective, alliances are used to improve performance by, among other things, rapidly reaching out to otherwise inaccessible markets.

Now, given that alliances come with an intention (to improve performance in one way or the other) and that this intention is gauged (albeit with great difficulty), we might say that alliances could be seen as either successful or unsuccessful. As already indicated, much previous research has concentrated its attention on this issue. Whether these studies have been successful in

measuring and predicting the outcome of alliances is not of relevance here. More interesting are the various factors that seem to be involved. These factors are many and not easily separated. For the sake of analytical clarity, I will restrict my account to three central points. These are *Transfer Capacity, Relationship Governance* and *Cultural fit.* Each of these categories contains sub-factors that will be described further on in the chapter. To help the reader get a comprehensive picture, I will describe the main factors and their relatives as key points in figures at the end of each segment.

Transfer Capacity

In order to understand an organization's transfer capacity, we first need to understand the parts that make up the transfer capacity starting with cognition, which I define as the ability to assimilate and disseminate knowledge.

Cognition comes from the Latin word *cognoscere*, an obsolete form of *conoscere*, which roughly translates to "to know" or "to recognize". It refers to the ability to process information, be that conscious, unconscious, natural or artifactual. In other words, cognition refers to the ability to find, acquire and process information. Cognition is particularly popular to consider in management studies, and it is the key theoretical starting point for a number of theories, including evolutionary economics, dominant logics, organizational studies and so forth. Another popular way of describing an organization's ability to assimilate information is through absorptive capacity. Cohen and Levinthal (1990) describe absorptive capacity as:

> … an ability to recognize the value of new information, assimilate it, and apply it to commercial ends. (Cohen and Levinthal, 1990:128).

Applied to alliances we could see absorptive capacity as being important for at least three reasons. First, the ability to recognize and find value is what needs to characterize the earlier stages of alliance building. During this period it is particularly important to find partners with unique values. Moreover, these values must be of such character that they can be acquired (Davidson and Olfman, 2004, Mowery et al., 1996). Second, alliance building needs to involve a process of assimilation and learning. This requires much effort from both organizations. In the event of two corporations with different 'dominant logics' (Prahalad and Bettis, 1986), the alliance will be plagued by higher

cognitive barriers (Szulanski, 1996, Jensen and Szulanski, 2004). Third, even though commercialization is so obvious it should hardly need to be mentioned, it is nevertheless a problem. Intentions vary greatly, and even though alliances are driven forward by commercial interests, these sometimes become overshadowed by a number of other contingencies (Rottman, 2008).

Scott's (2000) study on the disk-drive industry showed that trust and collaboration are key ingredients for inter-organizational learning (The relationship management part of their ideas will be discussed in the next subchapter). Scott identified two types of learning: 1) *lower-level* learning, which is acquired through repetition and routines that results in explicit knowledge of a task, and 2) *higher-level* learning, which is acquired through a change in norms, values and beliefs that results in tacit knowledge of a task. Scott furthers his reasoning on inter-organizational learning by identifying two specific variables that influence inter-partner learning, Transparency and Receptivity, but they have yet to be examined. Transparency refers to the degree with which the firm is willing to share and be open, thereby enabling a channel for alliance partners to learn. Receptivity is the inherent ability in alliance partners to learn and absorb knowledge from each other. Davidson and Olfman (2004) took Scott's work one step further by studying how ICT was used to facilitate the learning relationships with alliance partners, in essence studying how ICT can help transfer knowledge between partners and what factors influence that transfer. They also added three factors that they argue influence transparency and receptivity: *intent*, *absorptive capacity* and *relative absorptive capacity*. Intent refers to the purpose and aim of alliance partners' learning objective in this instance, but we will also see intent as an important aspect in both relationship governance and the discussion around cultural fit.

Absorptive capacity as a concept is often associated with Cohen and Levinthal (1990). They refer to absorptive capacity as the ability of an organization to absorb knowledge from its environment, in essence to be able to recognize the potential value of external information, and an understanding of how to assimilate and commercialize this knowledge. In their work Cohen and Levinthal discuss absorptive capacity as a matter related to the interface between the organization and the environment, as well as an interface between the involved actors within the organization. The key issue is to understand that there are differences in inherent knowledge between the prior knowledge of the individual and/or the organization and the external knowledge whether

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that is on an individual level or organizational level. By admitting, or realizing, that the characteristics of the individuals engaged in the transfer of knowledge will in large parts influence the interface between organizations according to Kalling (1999). This results in suggestions towards when you should have centralized or decentralized interfaces to transfer knowledge. Cohen and Levinthal draw attention to the risks of emphasizing commonalty over diversity, and they conclude that organizational path dependency may be sustained by over-emphasizing commonalty. Cohen and Levinthal suggest that:

> While some overlap of knowledge across individuals is necessary for internal communication, there are benefits to diversity of knowledge structures across individuals that parallel the benefits to diversity of knowledge within individuals. Cohen and Levinthal (1990:133)

This leads us into *relative absorptive capacity*, something that has been discussed by among others Lane and Lubatkin (1998). They argue that absorptive capacity works on the prerequisite that a firm has an equal capacity to learn from all other organizations, which according to the authors is erroneous. A firm's ability to learn from another firm in large extent depends on the similarities in three areas between the firms. These similarities will affect the "students'" ability to value, assimilate and commercialize the "teachers'" knowledge. The three areas that Lane and Lubatkin (ibid) identified are related to how similar their knowledge bases are, how well the organizational structures and compensation policies intertwine and if they share dominant logics. This is not controversial since Cohen and Levinthal (1990) already had commented on how prior knowledge will affect absorptive capacity.

> Prior knowledge permits the assimilation and exploitation of new knowledge. Some portion of that prior knowledge should be very closely related to the new knowledge to facilitate assimilation, and some fraction of that knowledge must be fairly diverse, although still related, to permit effective, creative utilization of the new knowledge. Cohen and Levinthal (1990:135-6)

This leaves us with a situation where Cohen and Levinthal (1990) tell us that there needs to be some knowledge overlap, albeit not too much, in order to both absorb and learn, and Lane and Lubatkin (1998) imply that we need to have similarities of firms' knowledgebase, structure and dominant logics, i.e.

central parts in the kind of interface with which the individuals of each firm has to work, in order to absorb knowledge. Both the arguments by Cohen and Levinthal (1990) and Lane and Lubatkin (1998) strongly suggest that the recipient of knowledge needs to have certain qualities as well as resources at hand in order to be successful. I will elaborate on my thoughts on this under characteristics of the recipient of knowledge.

However we want to look at this, it is widely recognized that alliances are often done in order to acquire external knowledge, i.e. to internalize the alliance partner's knowledge (Kale and Singh, 1999, Mowery et al., 1996). Garud and Nayyar (1994) have developed a concept of transformative capacity, which is a firm's internal ability to retain knowledge. Regardless of which capacity we choose to study, it is clear that knowledge retention over time is both important and something that we actively need to manage. This management requires different capabilities. (Garud and Nayyar, 1994, March and Stock, 2003)

Going back to the transfer part of Transfer Capacity, a dividing moment came during the late 1990s when work around different forms of best practices, including both identification and transfer, emerged as one of the more important practical management issues (Szulanski, 1996). The interesting part was that although management researchers such as Prahalad and Hamel (1990) and Grant (1991) had scrutinized different barriers to the transfer of organizational capabilities between firms, there had been little focus on impediments to the internal transfer of capabilities before Szulanski's work in 1996, Garud and Nayyar (1994) being the exception. Szulanski's research showed that contrary to "conventional wisdom", the factors that mattered to internal knowledge transfer were the recipient's lack of absorptive capacity, causal ambiguity, and an arduous relationship between the source and the recipient (Szulanski, 1996).

Within strategy literature, knowledge is often seen as something that can be acquired and transferred. Some critics have pointed out that such interpretation rests on an erroneous assumption about knowledge being a separate entity that can be reified (Alvesson et al., 2002). In this thesis I adopt a view of knowledge as something that corporations can, and indeed must, acquire and make use of.

What I am interested in is a potential overarching ability to absorb, share and transfer knowledge on ICT within alliances. Not wanting to reinvent the

wheel in any way, I have chosen to use Szulanski's framework, and even though he does not label it as transfer capacity, I would argue that it has validity in the context of the alliance framework I will propose. Szulanski presents three main factors in his findings, but they are of little interest to us here. What is beneficial for this study is his original four groups of factors for Transfer Capacity, i.e. not only the internal stickiness factors that are the end result of his original study. It is worth noting that even though Szulanski's work focuses on internal knowledge transfer, I would argue that the work has value as a tool to understand knowledge transfer within alliances based on two main arguments. First, alliances can be used to create working groups that, even though you are dealing with different organizations, work in similar ways as how companies would share and move knowledge in a larger organization (Bronder and Pritzl, 1992, Kale et al., 2000, Lichtenthaler, 2008, Mowery et al., 1996). Second, the four factors that Szulanski identifies as being important barriers for knowledge transfer can be seen repeated in many other alliance articles in different shapes and forms, see e.g. (Bronder and Pritzl, 1992, Davidson and Olfman, 2004, Doz, 1996, Gulati, 1995a, Gulati, 1995b, Nonaka, 1994, Rottman, 2008).

I will dedicate the rest of the Transfer Capacity chapter to the four main factors used by Szulanski (1996) in building his framework.

Characteristics of the knowledge transferred

Causal ambiguity describes a situation where a reason for failure, or at least unexpected outcome, is not clear even after the event has taken place. From an alliance perspective this could be a situation where similar or even the same alliance actions give different results for no precise reason. Davenport and Prusak (1998) argue that technology increases the speed at which knowledge can be transferred between firms. This does not go against Szulanski (1996) since there can still be ambiguity of value/benefit of what is being transferred. ICT also allows organizations to extend their reach in the world by extracting and combining knowledge from individuals and organizations and structure this knowledge into valuable information that can be traded for other services (Corvello et al., 2013, Fernández-Mesa and Alegre, 2013).

Unprovenness, as the name indicates, portrays a situation where it is difficult to motivate action, based on a lack of prior records of usefulness. This also means that if we have empirical evidence showing that a prior alliance was both helpful and contributed to the competitiveness of the company, then it

should prove easier to motivate a replication of said alliance. Furthering this discussion both Doz (1996) and Davidson and Olfman (2004) have argued that organizations, as well as individuals, can increase the ability to transfer knowledge by trying out a number of alliances or having a high frequency of alliances. This is what I would call a trial and error approach that can be costly for the participating partners. A more recognized way of increasing absorptive capacity is to have, or develop, alliance management capabilities, according to among others Dyer and Sing (1998), Kale and Singh (2007) as well as Gulati, (1999). Alliance management capabilities would alleviate the unprovenness towards alliances as such but not towards a specific alliance.

Before we can leave the characteristics of knowledge transfer we need to go back to Cohen and Levinthal (1990) who argue that in order to develop an effective absorptive capacity of any kind, it is not enough to learn theory and then briefly be exposed to practice. We also need to have an "intensity" of effort in order to be successful, what that means in this instance is that we both need to understand how often knowledge is being transferred and by what medium. This is notion of intensity is also mentioned by Aral and Weill (2007) in reference to learning about ICT. Understanding that an organization's absorptive capacity is not only its ability to transfer and assimilate knowledge, but also its ability to exploit this information according to Cohen and Leventhal (1990) means that the organization's interface towards both the external world and within the own organization becomes part of the firm's absorptive capacity. Taking this thought one step further the structure of communication and information distribution internally as well as externally becomes central. However, where Cohen and Levinthal (ibid) discuss specialized actors as well as design of communication structures, I would argue that we need to discuss ICT capabilities instead.

In essence I would argue that having an ICT capability will help the company both to get an higher use intensity when it comes to transferring knowledge (due to lower transactions costs within a functioning system) and, more importantly, to accumulate, store and sort prior knowledge. The richness of your prior knowledge as well as the diversity of knowledge will both help the individuals to accumulatively learn to learn and facilitate innovation as described by Cohen and Levinthal (1990).

Having established that ICT can help partners both speed up transfer of knowledge as well as extend their reach in order to obtain knowledge, it is

interesting to also note that Davidson and Olfman (2004) claim that ICT increases the receptivity of partners, i.e. their ability to absorb knowledge, by providing multiple channels of communication internally as well as externally. Their study shows that organizational transparency and receptivity through the use of ICT was apparent in the alliances where technology was used as a way of providing information to partners. The use of ICT did not, however, alleviate the need for face-to-face interaction. In order to build a relationship that would use ICT, it was necessary to have face-to-face interaction in a relationship's buildup phase.

Without being flippant it could almost be argued that ICT skills are akin to an alchemist dream of the philosophers' stone that can transform base metals into noble metals. But to date there has been no proof of the "stone" neither in alchemy, nor in the IT literature. What is needed is to open the black box of ICT skills as mentioned in the first chapter. Looking to competencies as such, this is one part that has not been thoroughly investigated in ICT research, something that Corvello et al. (2013) acknowledge in so much that they argue for a lack of research on technological fit between partners. What we do have are a number of articles on the effects of having some form of ICT capability as well as discussions in and around different performance criteria, but alas not much about the actual content of an ICT competence.

Aral and Weill (2007) have done an attempt to explain ICT content. Albeit being rather instrumental in its approach, it is nevertheless one of the few attempts that has been empirically and theoretically validated that I have found. Despite using different labels than what I have discussed previously, they divide ICT capabilities into Assets, Competencies/Skills and Practices/Routines. Assets in their model refer typically to hardware, e.g. infrastructure, automated processes and supporting functions, all of which are of less interest to us in this instance.

However in terms of competencies and skills, they talk about *Human resource competency* and *Management competency*. The *Human resource competency* includes the actual ICT skills of all employees and both their technical and business skills, i.e. both actual hands-on skill and complementary skills such as ICT support and Training. This, in its simplest terms, would indicate for instance being comfortable with a trial and error approach on a new electronic device; rather than reading the manual you push buttons in order to learn functionality. The second part of the human resource competency looks to

business skills. This can be as simple as knowing how to use an excel sheet correctly in order to derive useful data. This is important in so much that we have seen a shift in demand on the labor market over the past 25 years, where more and more skilled workers are required (Drucker, 2008). Having a skilled workforce naturally puts demands on *Management competency,* where management not only has to understand the technology being used, but actively championing it in order to align ICT to business processes (Brynjolfsson and Hitt, 2000). This, according to Aral and Weill (2007), means that firms should really assess: a) the technical and business skill of IT staff as well as business users and b) the relative ability of the firms to satisfy their demand for highly skilled IT labor.

The third part of Aral and Weill's (2007) model to explain ICT capabilities handles *Practices,* which include the routine in and around the use of ICT. It is divided into three subcategories: First *IT use intensity for communication* which handles how much the firm actually uses ICT internally and externally in day to day operations in order to both communicate and work electronically. Second *Digital transaction intensity* which measures to what degree internal and external transactions are conducted electronically, thus indicating a maturity in the ability to integrate systems or an ability to push key functions outside of the firms' boundaries. Finally *Open Internet architecture* which is important since it can reduce both external and internal integration costs, as compared to trying to integrate different proprietary systems.

The list of both competencies and practices that Aral and Weill (2007) discuss is both exhaustive and functional, but it does not really describe – in terms of nature, characteristics and properties – the knowledge in question. There is no real discussion on tacitness, causal ambiguity,unprovenness, complexity and heterogeneity of the subject, which we would typically have in the knowledge related area, see for instance Contractor and Ra (2002), Easterby-Smith and Lyles (2003), Kalling and Styhre (2003), and Spender (1996b). Consequently we cannot label the different ICT components with regards to typical knowledge features. Furthermore it is not exactly clear what makes the ICT capability difficult to absorb and/or transfer. But it is fair to assume that the more experience-based aspects of both competencies and processes, e.g. having both broad technical skills of IT and practical experience in using different IT solutions, are factors that make the transfer difficult. They are tacit and more often than not unrelated to existing knowledge in the recipient

company[11]. This un-relatedness of knowledge is something that Cohen and Leventhal (1990) discuss as a barrier to transferring knowledge.

This does not mean that the description of ICT capabilities is not valuable, but merely that we need to be aware of the limitations of the model used by Aral and Weill (2007).

Characteristics of the source of knowledge

We can argue that learning takes place in many different ways, and one viable way of learning is to use existing knowledge and experience (Kalling and Styhre, 2003). This entails that organizations learn by sharing knowledge and experiences, which in itself is a form of knowledge.

In the context of the present study, an alliance learning process helps firms and their managers to learn, accumulate and leverage alliance management know-how and best practices, as claimed by Park and Zhou (2005). One problem with this specific learning process is that the knowledge of alliance building is often tacit; companies need to work on externalizing the knowledge (Alvesson & Sveningsson, 2003; Gulatti, 1995b; Kale, Dyer and Singh, 2002). This externalization of the knowledge then would require some specific attributes, or rather a lack of attributes, from the source according to Szulanski (1996).

Lack of motivation depicts a situation where the knowledge source might be reluctant to share information based on a fear of both losing it and wasting time and effort. The discussion of lack of motivation could also be compared to a lack of commitment to the alliance, as described by for instance Cullen et al. (2000), De Man et al. (2010) and Parkhe (1993). Looking to alliances this might describe a situation where the actual transfer of knowledge does not seem feasible for reasons such as lack of training, resources, documentation and so forth. What we are talking about here is a risk aversion phenomenon, where the source of knowledge does not want to be subject to opportunistic behavior. It could indicate a need to have what Gulati (1995a) calls a mutual hostage situation, which in essence means that both parties need

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[11] One example of this tacitness of knowledge when it comes to technical skills and practical skills would be the ability to set up server parks, which can be taught to do on a theoretical basis, but always requires hands on experience to get to work in reality (as anyone who has tried it can attest to)

to have vested interest in the transaction. An administrative structure (whose task is to monitor everyday functions of the alliance and register emerging contingencies) is another way of helping companies achieve better results. Not doing any of this might lead to potential problems lowering motivation.

Not perceived as reliable is a quite self-explanatory factor that argues a certain need for the knowledge source to be viewed as both knowledgeable and trustworthy in order for any transfer of knowledge to seem meaningful. Nonaka (1994) identifies commitment from the individual to be the primary influencing factor for knowledge creation. The commitment is in turn dependent on three factors: *intention*, how individuals approach and make sense of their environment; *autonomy*, the level of freedom individuals and groups need to have to interact and create unexpected opportunities; and *fluctuation*, the fluctuations and even breakdowns that create new patterns of learning through continuous interaction between the internal and external world. Going by Rottman (2008) social capital in itself is not enough to assure success in knowledge transfer. The firm's social relationships are, nevertheless, used as building blocks for expansion since it is hard to find new ways of cooperation. In an alliance perspective this would indicate that both parties have similar views on the business at hand. The source of the knowledge needs to be perceived as having good general understanding of both the knowledge being transferred and the practice of transferring said knowledge and as having the resources allocated to do so. But to be viewed as both knowledgeable and trustworthy involves some form of evaluation of risk and trust associated with the source of the knowledge, which are complex phenomena with many nuances. While Gulati (1995a) clearly argues for securing risk and establishing trust, he somewhat overlooks the need for the opposite. As Goerzen (2007) claims, an alliance always seeks economic benefit, irrespective of trust and security, which means that the characteristics of the recipient also need to be considered.

Characteristics of the recipient of knowledge

Lack of motivation, contrary to what the name implies, actually reasons around the potential reluctance to accept outside knowledge. It may result in everything from complete dismissal of the knowledge to pretending to accept knowledge and covertly sabotage instead. Corporations are equipped with their own idiosyncratic knowledge base that more often than not represents a form of best practices that is similar across firms (Eisenhardt and Martin,

2000). However, a corporation endowed with a high level of collaborative knowhow can achieve new mutual platforms for facilitating communication and the transference of knowledge, even when it faces a corporation that has a different knowledge base than its own. This is a *sine qua non[12]* for rendering alliances, and it points to the importance of practices and operational procedures around how to share knowledge within an organizations as well as within an alliance (Kalling and Styhre, 2003). This in itself implies a commitment of resources as mentioned in the characteristics of the source of knowledge as well. What you want is an alliance learning process which helps firms and their managers to learn, accumulate and leverage alliance management knowhow and best practices according to Park and Zhou (2005). One problem with this specific learning process is that the knowledge of alliance building is often tacit; companies need to work on externalizing the knowledge in order to not start losing motivation (Alvesson & Sveningsson, 2003; Gulatti, 1995b; Kale, Dyer and Singh, 2002). From an alliance perspective, a lack of motivation could be a situation where the recipient sees an unfavorable situation emerging when comparing its own personal performance to that of the source. It might also be a situation where neither time or training nor incentives are in place to facilitate a transfer.

Lack of absorptive capacity, as the name would imply, explores a situation where the recipient is unable to exploit the transferred knowledge. Having a proverbial lack of absorptive capacity occurs when there is a lack of common language between the recipient and the source. This malfunction in the interface between organizations has been discussed from different settings. Cohen and Levintahl (1990) argue that in order to understand an organization's absorptive capacity, we need to understand the individual members of that organization. As I argued in the part about the characteristics of knowledge being transferred, it is not enough to have a functioning interface towards the external world. The organizations' ability to build individuals' knowledge richness in order for them to learn how to learn will eventually lead to an ability to see patterns of knowledge within the internal organizations. Cohen and Levinthal discusses this as an:

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[12] Meaning the essential condition

"awareness of where useful complementary expertise resides within and outside of the organization" Cohen and Levinthal (1990:133).

Furthering the interface discussion you can say that in this case, the recipient is lacking the necessary skills to value, assimilate and apply the transferred knowledge to any meaningful value. Simonin (1997) maintains that experience alone is not enough to achieve the full benefits of alliance building. In some ways this is contrary to what among others Rothaermel and Deeds (2006) argue. They advocate that alliance capabilities are built through repeated engagements in alliances over time, allowing a firm to codify routines, policies and procedures that frame the alliance work. In essence the firm accumulates a wide knowledge base around alliances and thereby builds an absorptive capacity. This in turn indicates a continuous improvement process that correlates with recipients' absorptive capacity, an important factor for knowledge transfer. Going back to Nonaka (1994) who is concerned with social interactions' ability to influence knowledge creation, we have previously noted that it is the individual that is the primary influential factor in knowledge creation, with three dependencies: intention, autonomy and fluctuation.

Lack of retentive capacity indicates that transferred knowledge is only effective as long as it is retained within either the recipient or the receiving organization. What Simonin (1997) shows is that organizations do learn from prior alliance experiences, but they utilize the experience by transforming it into skills that can be used to identify, manage, monitor and negotiate alliances. The difference compared to Rothaermel and Deeds (2006) is that Simonin stresses the fact that experience of any sort is only valuable to the organization if it can be internalized. (This is very similar – if not the same – as saying that the companies codify routines. Internalization and codification is also a part of a transfer capacity.) In this aspect Anand and Khanna's (2000) notion that the importance of learning increases with the difficulty in specifying the processes or knowledge in question, is also noteworthy. It stands to reason that the complexity of alliances goes up as more alliances are added, and hence the need for learning increases in a sort of double loop of its own. It is interesting to note that Teece (2007) advocates that firms need to:

"… dispel prejudice against technology from the outside, and hone their absorptive capacity through learning activities and skill accumulation. Teece (2007:1331)

The lack of retentive capacity from an alliance perspective would indicate that the receiving organization has both personnel and routines for correcting mistakes in transfers and rewards for good performance, but where still unable to keep and use the transferred knowledge. That in itself indicates that it is a measured process with clear goals for the alliance.

Characteristics of the context

Knowing how to relate to knowledge is an important factor in learning. Grant (1996a) and Grant and Baden-Fuller (2004) argue that we need to have a common language as a basis for interpreting our experiences. By relating the learning to what we already know, we have a greater chance of enhancing our learning, but firms tend to forget that learning is a difficult, frustrating and often misunderstood process according to for instance Inkpen and Crossan (1995). Inkpen (2000b) furthers this thought to argue that we experience difficulties in the learning process even in situations with explicit knowledge, i.e. easily transferred knowledge.

Prior actions and track record tend to predict future actions since firms' cumulative knowledge is what dictates their expansion options for the future. This is in line with Grant (1996a and 1996b) who claimed that knowledge is a central source for the firm. Drucker (2008) went as far as to claim that knowledge is the only meaningful resource. Regardless of how you choose to view it, knowledge assets are embedded in the firm. Therefore it is also quite clear why Szulanski (1996) argues that a *barren organizational context* will hinder knowledge transfer as will a lack of functioning relationships, or *Arduous relationship*, which we will now briefly discuss.

Barren organizational context is an overarching name trying to depict a situation that is inconducive to facilitate knowledge transfers. Having a barren organizational context is for instance a lack of having formal structures and systems in place that can facilitate the coordination of expertise and knowledge. If we would use the theory of bureaucracy, all necessary knowledge of the firm resides with top management, and this is what gives them power and legitimacy. According to Gravier et al. (2008) the senior so-called *decision makers'* influence on the success of an alliance cannot be

overstated. Rindfleisch and Moorman (2003) argue that senior management help embed alliances as social institutions when they search for resources, skills and information. This, then, would be an example of creating a more *fertile* organizational context. Of course this could also be labeled a top down approach, where the number one priority is that top management is involved (Lorange et al., 1992).

The search for knowledge is often a way to reduce uncertainty according to Gulati (1998). If this is not true and lower levels have the power or knowledge to deal with uncertain situations, then there is a reversal of power. This idea was refuted by for instance von Hippel (1988) who argued that ideas from the outer edges of the company, i.e. customers and the people who deal with customers, are the ones who can increase an organization's learning and knowledge. This claim presupposes a non-bureaucratic management style. According to Spender (1996b) this entails that a better way for top management to run the firm is to provide employees with a context or frame in which they can work, learn and grow. It would also suggest a generous agency, something Spender in later works has continued to argue. Firms might actually be somewhat self-organizing, with a lesser need of management (Spender, 2012).

Arduous relationships is what Szulanski, using work from Nonaka (1994), denominates a situation where tacit knowledge causes a need for more exchanges in order for transfer to take place. He argues that ease of communication and familiarity between partners is also of importance. It resembles Inkpen and Tsang's (2005) discussion on social capital and how it affects the transfer of knowledge between alliance members. Alliance networks provide firms with access to markets and technologies they would otherwise not have the ability to compete in, but the social capital is needed in order to have the trust needed to transfer knowledge. According to Rottman (2008) once social capital is in place, other benefits such as increased efficiency, better cooperative behavior, higher level of trust, less costly monitoring and increased innovation will follow. This is interesting since it seems to go against the thoughts of for instance Brown et al. (1989) who claims that transaction costs and risk of intellectual property right theft goes up with increasing knowledge transfer and social capital. This in turn puts pressure on the channel of communication, where arduous relationships between the source and the recipient can result in problems for the knowledge transfer. Interestingly Davidson and Olfman (2004) argue that the more you use ICT

in alliances, the higher the opportunity to learn between partners. Aral and Weill's (2007) model supports this. However, in order for ICT to fully facilitate an alliance, it must also be accompanied by face-to-face interaction. Only then can inter-organizational learning take place. I would argue this reasoning to be very similar to the need of having a good relationship with partners.

Intent. Studying the former segment, it might seem obvious that we also need to discuss intent in some way. Factors such as motivation and unprovenness show that there is a need for a commitment and intent from management towards the relationship. This will be discussed in the next subchapter. However we also need to understand in what context the alliance is taking place, i.e. if there are divergent interests and/or divergent intents in the sharing of knowledge (DeTurk, 2006). Considering the discussion of Anand and Khanna (2000) on alliances as incomplete contracts, tacit intent with the actual alliance becomes an important factor. Thinking of ICT as the facilitator of knowledge transfer, as has been discussed previously in this chapter, we need to go back to Davidsson and Olfman's 2004 work. They discuss both absorptive capacity and relative absorptive capacity, which in turn will be governed by the alliance partners' learning objective, i.e. intent with the alliance.

Table 1.
Summarizing table of transfer capacity.

Influencing factors	Transfer Capacity's role in an Alliance perspective.	Relevant authors in transfer capacity literature	Generated interview Questions
Characteristics of knowledge transfer: - *Causal ambiguity* - *Unproveness* - *ICT* *Characteristics of the source of knowledge:* - *Lack of motivation* - *Not perceived as reliable* *Characteristics of the recipient of knowledge:* - *Lack of motivation* - *Lack of absorptive capacity* - *Lack of retentive capacity* *Characteristics of the context:* - *Barren organizational context* - *Arduous relationships* - *Intent*	-The ability to recognize, assimilate and use new information. -The ability to codify and express explicit knowledge is coupled with the ability to express and translate tacit knowledge. -The ability to move individual "intrinsic" knowledge within and outside of the organization. - The ability to assimilate and use intrinsic individual knowledge and make it path dependent .	Alvesson, 2002; Alvesson and Sveningsson, 2003; Anand and Khanna, 2000; Brown et al., 1989; Davidson and Olfman, 2004; Doz, 1996; Drucker, 2008; Dyer and Sing, 1998; Eisenhardt and Martin, 2000; Gulatti, 1995b; Gulatti, 1998; Gulatti, 1999; Grant, 1996a; Grant, 1996b; Grant and Baden-Fuller, 2004; Gravier et al., 2008; Inkpen, 2000b; Inkpen and Crossan, 1995; Inkpen and Tsang, 2005; Kale and Singh, 2007; Kale, Dyer and Singh, 2002; Kalling and Styre, 2003; Nonaka, 1994; Park and Zhou, 2005; Spender, 1996; Reber, 1993; Rindfleisch and Moorman, 2003; Rothaermel and Deeds, 2006; Rottman, 2008; Simonin, 1997; Szulanski, 1996; Teece et al, 1997; Teece 2007; von Hippel, 1988	• How do you retain alliance knowhow individuals have? • How do you disseminate alliance knowhow within the organization? • What sort of learning programs do you have in place for alliance building internally as well as externally? • How do you use ICT to share knowledge internally as well as externally? • How do you choose alliance partners? • How do you measure alliance success? • How do you evaluate alliances and partners in them? • How do you regulate or administrate alliance partnerships?

Relationship Governance

In the previous sections we touched upon how relationships and the way they are managed will also influence how learning and knowledge transfer take place. How then do you govern or manage relationships? I will argue that the first order of business is communication on many different levels and, unless this communication is done in person, some form of Information and Communication Technology (ICT) to facilitate it.

Alliances are all about handling relationships, where differences between alliance partners can be both a hindrance and a help according to Hughes and Weiss (2002). They see differences as a source of potential learning, creative solutions and value creation. On the downside, differences can also be a source of unproductive conflict between alliance partners. If left unresolved, they lead to alliance failure. Making alliances work requires common understanding about relationships in general and the relationship at hand in particular. In their article *The relationship relaunch*, Weiss, Visioni and Eaves (2004) describe methods for managing failed alliances as well as common approaches and mindset for working together. The key to a successful alliance or relationship, according to Kliman and Parker (2004), is to seek to build – rather than to buy – a strong working relationship.

In the following we will look at different aspects that are said to influence relationships starting with Ouchi's (1980) model on Markets, Bureaucracies and Clans, which I believe is an ideal starting point for discussing relationship governance.

Relations

Ouchi (1980) argues that the only way to get the right granularity in organizational theory, and hence organizational efficiency, is by using a transaction cost approach. This, he further argues, is due to the fact that it enables us to appoint cost to the specific conditions that may apply when individuals have any form of an exchange.

Even before Ouchi (ibid), Williamson (1975) argued that organizations, and hence corporations, exist since they can facilitate transactions between members at a lower cost than a market could, which should further point to a need to know what that cost is in order to make an informed decision on a potential exchange.

In Ouchi's (1980) findings we see a triangle of relational mechanisms that may be present to different degrees in any Organization[13]:

- The first mechanism is *Markets.* Ochi claims that markets have two ways of failing: due to Human factors and due to Environmental factors. The two can co-occur in so much that the human factor of Bounded rationality[14] is interlinked with the environmental factors of Uncertainty & Complexity. Market failure mechanism is also interconnected with the human factor of Opportunism and thereby with the environmental factor of small numbers.

- The second mechanism of any organization is *Bureaucracy,* which has two principal advantages over the market relationship according to Ouchi. The first one is employment, which represents incomplete contracts in their own right. The second is the potential ease with which bureaucratic organizations can build a trusting atmosphere between employees. This is to be compared to what an open market with different stakeholders can manage.

- The third mechanism present in an organization is *Clans.* The need for Clans arises when it is impossible for external parties to evaluate the potential value added by any given individual within a bureaucratic organization. The clan achieves efficiency in the exact opposite way of the market, i.e. with high uncertainty and low numbers. In essence it means that clans rely on creating goals and values similar to those of the market. They rarely stand up to contractual agreements but rather to tacit measures that are hard to verify.

As always when we look to management issues, be they relationship-oriented or alliance-oriented, there will be some overlap of thoughts, and many of

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[13] Ouchi defines an organization as any stable pattern of transactions between individuals or aggregation of individuals (Ouchi, 1980:140).

[14] In short the theory argues that in any decision making process, the individuals making the decision are limited by the information they have as well as their potential cognitive ability and the amount of time they have at their disposal to make the decision. This is thought to lead to decisions based on simplified solutions.

Ouchi's discussion points can be recognized in other parts of the following text. Ouchi's framework is summarized in table 2 below.

Table 2.
Ouchi's organizational failures framework (Ouchi 1980:137).

An organizational Failures Framework		
Mode of control	Normative Requirements	International Requirements
Market	Reciprocity	Prices
Bureaucracy	Reciprocity Legitimate authority	Rules
Clan	Reciprocity Legitimate authority Common values & beliefs	Traditions

Juridical matters and agency

Proceeding from the framework of Ouchi, it can be argued that you need contracts of different sorts to govern any organization or, more to the point, both contracts and agency or power to take action within a relation. Luo (2006), for instance, discusses how in volatile markets a lack of ability to enforce juridical matters will create more opportunistic behavior. Hill and Jones (1992) take their starting point from agency theory and discuss how the firm as such is actually constituted of different stakeholders that are in turn part of a nexus of both implicit and explicit contracts. Noreen (1988) has a somewhat similar point of view in so much as he argues the point that any ethical code of conduct to restrain opportunistic behavior cannot be readily enforced by external rewards or sanctions. Rather, sanctions for unethical conduct must be internalized, possibly using contracts that regulate the behavior. Organizations likely need both contracts and internalized codes of conduct, where alliances are a natural starting point for implementation of this behavior (Mayer and Teece, 2008). Although we know that alliances can help facilitate knowledge transfer, we also know that most alliances fail. They represent a risk to the companies engaging in them, in that the partner might

acquire knowledge without reciprocal actions and in that the munificent company may lose time and resources. This is reminiscent of what von Hippel (1994) calls "sticky" knowledge. We need to understand how it can be moved around within the firm without leakage to other institutions. This thought has just as much bearing within the company as in alliances that it has with the outside since the currency of trade is knowledge. This indicates that the organization's structure will be important and that bureaucratic as well as legal definitions of the firms will have an impact on knowledge transfer (Daboub and Calton, 2002, Reuer and Ragozzino, 2006). Furthering the thoughts of Becerra et al. (2008) the transfer of explicit knowledge is related to companies' willingness to take risks, where the propensity for risk-taking and the transfer of explicit knowledge has very little to do with the evaluated success of the alliance.

Strategic fit

The initial thought that relationships are governed by communication between individuals and companies on different levels implies that we need steering groups of and a fit between individuals and groups that are supposed to communicate. Grant (1996b) argues that, since the knowledge that the organization needs resides within the individual, organizations' primary role is to coordinate and organize the knowledge in what he calls "knowledge application". Organizations need to organize themself in respect to both intent and group dynamics, i.e. hierarchy and distribution of decision-making authority. This claim is supported in part by Hamel (1991) who argues that there are asymmetries in partners' ability to learn, i.e. discrepancies in strategic fit. Partners might have different competitive and collaborative aims, which might be more important than any potential structure.

Furthering a discussion around partners' learning differences and intent, Kale and Singh (1999) argue that one of the most important aspects of successful alliances is the ability to share and disseminate accumulated knowhow throughout an organization. It is typically done by implementing processes that facilitate both accumulation and sharing of management knowhow, e.g. through alliances committees, task forces, informal group meetings and conversations. This notion is supported by Simonin (2004) who claim that a discussion around partner protectiveness and a culture towards learning will positively influence the structural form, or strategic fit, of the alliance.

As mentioned in the first part of the relationship segment, the differences between alliance partners can be both a hindrance and a help according to Hughes and Weiss (2002). The idea is that the differences can just as easily be used as a creative process with value and knowledge creation as a source for conflict and alliance failure in the end. Kahle et al. (2000) warn of opportunistic behavior when there is no strategic fit, indicating that to make the alliance work, there needs to be understanding about relationships in general and the relationship at hand in particular (Weiss et al., 2004).

Communication channels

Before I even start to discuss actual communication channels I would like to go back to Cohen and Levinthal's (1990) discussion on interfaces and organizations. An intrinsic point of transferring and absorbing any knowledge is to communicate in some fashion. At the most basic level their needs to be at least partial overlap of relevant knowledge to permit effective communication. However, looking further into this, Cohen and Levinthal warns us that if all actors share the same specialized language, e.g. a siloed industry, they will only be effective in communicating with each other rather than being able to tap into valuable knowledge sources from alliance partners. Put in a simpler way, we need to have bumps in the road of communication in order for innovation to really take place instead of getting a "Not invented here syndrome[15]."

What organizations should be looking for, according to Cohen and Levinthal (1990), is a sufficient level of knowledge overlap to ensure effective communication and the promotion of interaction across individuals and alliance partners who possess diverse and different knowledge structures. This in combination with an ICT capability, I would argue will strengthen the organization's ability to link and associate information in order to innovate.

As has been mentioned repeatedly in this work, within the research field of ICT, little work has been done on alliance building in conjunction with ICT, i.e. on how alliances can be used to increase ICT capabilities. Looking to communication channels, this almost becomes a double loop since what we are talking about is: a) alliances as a way to improve ICT skills, but also b)

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[15] Not Invented Here describes a culture that avoids using/buying/aligning to use already existing products and instead opts for in-house development and production.

different ways of communicating within and between alliances, where ICT can play a very important role. One of the pioneers within the field is McFarlan, who in 1984 argued that information systems operating within alliances would alter the bargaining powers between buyer and suppliers (McFarlan, 1984). McFarlan (1990) later did a marketing study that indicated that alliances with a collaborative ICT relationship can receive benefits in the form of lowered transaction costs, shared visions on managerial level and shared ICT skills. This is also supported in kind by Afuah (2003), who suggests that the Internet has changed the boundaries within which companies work, indicating that ICT can act as a medium between companies in order for them to operate as a fully vertically integrated company.

Davenport and Prusak (1998) argue that technology increases the speed at which knowledge can be transferred between firms. ICT also allows organizations to extend their reach in the world by extracting and combining knowledge from individuals and organizations and structure it into valuable information that can be traded for other services.

Furthering the claims of ICT are Davidson and Olfsman (2004) who show that ICT can increase partners' ability to absorb knowledge in what they call increased receptivity. This is done by ICT's ability to provide multiple channels of communication, internally as well as externally. The study pointed to greater transparency as well as receptivity between alliance partners when using ICT. It also clearly showed that there is a need for face-to-face interaction in the building of relationships.

Davidson and Olfman (2004) use their case study to draw a number of interesting inferences: 1) the more ICT is used in facilitating an alliance, the higher the opportunity to learn for partner organizations, 2) there must be intent as well as ability to learn in order for learning to transpire, and 3) the use of ICT to facilitate an alliance must be accompanied by face-to-face interaction if inter-organizational learning is to take place. One aspect they did not take into account is how different cultures will affect organizations' ability to learn and implement new knowledge. Another relevant issue, raised by Taylor and Williams (1994), is how ICT acts as an enabler for change, which brings us back to the double loop thinking mentioned earlier. In other words alliances are seen as the enabler to achieve ICT learning in this study, but ICT in itself can be used to accomplish this learning and change. Organizations have historically been structured to run around specific flow of

information. By injecting ICT into an organization, you open up new channels where information can flow, thus creating the basis for profound organizational change.

The ICT systems face the task of delivering the right information to the right person at the right time, regardless of geographical location. We live in an ever-increasing world of change, and as has been argued previously, ICT is in the heart of most changes that take place in the modern business world, according to Villas and v.A. de Macedo-Soares (2007). Looking to the change we want to take place, it requires alliances and systems that are flexible, efficient and responsive to change, and a common alliance language with a way of both structuring and delivering information regardless of what medium we use, e.g. voice, face-to-face communication or some ICT product (Prahalad and Krishnan, 2002, Villas et al., 2005).

To summarize ICT's role in governance and management, it has been showed that ICT has many qualities; chief among them is the ability to transform organizations. ICT offers firms multiple communication channels, which can help augment intra- as well as inter-organizational learning, and in the long run thus speed up knowledge transfer. The ability to combine knowledge from different individuals and organizations over a multitude of channels offers better transparence and flexibility than traditional methods of communication, and thereby increased competitiveness. The risk for information-process overload has driven the field to think of new ways of tagging and sorting data in order to lower transaction costs, but they do not completely eliminate the need for face-to-face interaction.

Attitude/Intent

Attitude as a word can hold a multitude of meanings, but in the alliance literature it refers to how companies use resources, commitment and social relations to handle alliances as such. It also encompasses the notion that since there are asymmetries in strategic fit (see above), it is important to understand partners' intent with the alliance according to both Hamel (1991) and Grant (1996b). Honohan and Visioni (2002) believe that being transparent toward partners is the only way to get quality-decisions both quickly and accurately. By answering the question of "what's going to happen to me?" for all employees, the feeling of unease can be considerably lowered in changing environments. Projects stand a better chance of succeeding and not slowing to a creep. Transparency is also a way of ensuring convergent intent.

Dedicated alliance functions will lead to greater alliance capability and success, whereas a lack of commitment can lead to failure. By committing resources, i.e. alliance function(s), the firm will be better able to coordinate between alliances and find strategic and operational avenues to guide individual business units in alliance related issues (Hamel, Doz and Prahalad, 1989; Hoffmann, 1997; Kale, Dyer and Singh, 2002; Lorange and Roos, 1993). This notion is strengthened by Bronder and Pritzl (1992) who argue that lack of resources can lead to alliance failure. Systematic allocation of resources that put alliances in the right tier, with the explicit goal of receiving better partnering results, is one factor that can improve alliance success according to Kliman and Visioni (2002). Correspondingly, divergent expectations and intent within organizations and their partners are often cited as reasons for alliance failure (Doz and Hamel, 1998; Larsson, 1992; Parkhe, 1991).

Trust

It can be argued that in order to have and build trusting relations you need to be able to utilize all of the five above-mentioned factors. Gulati (1995a) believes that companies often pool resources in order to pursue specific market opportunities and that these types of alliances are easier to accomplish with inter-firm trust. Gulati argues that repeated alliances give way to joint ventures, R&D agreements, technology exchange, direct investments and different licensing agreements. Regardless of what type of alliance the company chooses to partake in, it is important to understand what drives the firms into any form of alliance or integration scheme.

Authors such as Becerra et al. (2008) and Judge and Dooley (2006) argue that trust as a factor helps to lower transaction costs. In their view, as well as in the view of Gulatti (1995a) and Park and Ungson (1997), trust works as a constraining factor on control and coordination needs, i.e. the need to control and coordinate is lowered when you trust someone or something. The transaction costs associated with controlling functions are hence lowered. Trust may also constrain selfish or opportunistic behavior and thus further reduce transaction costs (Das and Teng, 2002, Noreen, 1988, Park and Ungson, 1997, Parkhe, 1993). Even though culture as an alliance phenomenon will be discussed in the next subchapter, it is still valuable at this point to seek to understand culture's relation to trust. According to among others Smircich (1983) and Rottman (2008), a culture built on trust can

overcome problems that formal rules and regulations normally cannot. This is further supported by Inkpen and Tsang (2005) and Doney et al. (1998) who argue that trust can be regarded as a set of beliefs and expectations that help moderate the cognitive process. This is especially important to take into consideration when trying to understand how ICT might be integrated into a theory of alliances. In many ways communication through ICT has to be based on trust.

Table 3.
Summarizing table of Relationship Governance.

Influencing factors	Relationship Governance's role in an ICT alliance perspective	Relevant authors in the literature	Generated interview questions
Relations *Juridical/Agency* *Strategic fit/Steering* *Communication, ICT augmenting* *Attitude/Intent* *Trust as a product of the others*	Interpersonal and small-group communication, can drive system change.; where the dissemination of knowledge is helped by a common language as well as multiple communication channels. ICT can help increase the speed at which information and knowledge can be moved, this in turn means that ICT can augment interorganizational and intraorganizational learning, With ever new ways of tagging and cross-referencing data we can produce new ways of sorting and interpreting said data. These factors and more facilitate organizational transformation. Trust is very often built on personal relationships as well as social exchanges. This trust can materialize in a willingness to act on beliefs and expectations, without formal contracts or guidelines. Trust can also work as a constraining factor for both selfish behavior as well as a mediating factor for control and coordination needs of alliances. Having assured resources in a project increases the possibility of inter-organizational learning as well as success with the alliance. It is important to understand that there more often than not be both divergent intent between the different alliance partners as well as	Becerra et al. 2008; Bronder and Pritzl, 1992; Das and Teng, 2002; Davenport and Prusak, 1998; Davidson and Olfman, 2004; Doney et al., 1998; Inkpen and Tsang, 2005; Judge and Dooley, 2006; Doz and Hamel, 1998; Gulati, 1995a; Hamel, Doz and Prahalad, 1989; Hoffman, 1997; Honohan and Visioni, 2002; Kale, Dyer and Singh, 2002; Kale and Singh, 2007; Kliman and Visoni, 2002; Larsson, 1992; Luo, 2006; Lorange and Roos, McFarlan, 1990; 1993 Noreen, 1988; Ouchi, 1980; Park and Ungson, 1997; Parkhe, 1991; Parkhe, 1993; Rottman, 2008; Smircich, 1983; Taylor and Williams, 1994	• What role does ICT have in alliance building? • What role does ICT have with your products? • How do you measure or value trust within the alliance? • How do you control/measure alliance intent between partners • What resources do you put into handling your alliances? • How do you evaluate you alliances? • How important are personal relationships in your alliance building? • Is trust an issue or are legal documents the issue with alliance building? • How do you communicate the alliance internally as well as externally?

Cultural fit

Just as the term alliance, organizational culture has a plethora of definitions. In the comprehensive study made by Verbeke et al. (1998) on organizational culture definitions used between 1960 and 1993, 54 different definitions were identified. However, as pointed out by Doney et al. (1998), Kroeber and Kluckholm identified 160 definitions of culture already in 1952 . In this work on alliances and culture theory that applies to alliances, I initially considered using Smircich's (1983) definition of culture:

> social or normative glue that holds an organization together […] it expresses the values or social ideals and the beliefs that organization members come to share (Smircich 1983:344).

Hill's (1997) definition of culture is similar to that of Smircich:

> a system of values and norms that are shared among a group of people and that when taken together constitute a design for living (Hill, 1997:67).

Doney et al. (1998) elaborate the notion further, regarding culture as an attribute that develops within any identity group that is allowed to endure over time.

In the following, I refer to culture as the term has been employed by Hofstede (1983), who defines culture in the following way:

> My favorite definition of "culture" is precisely that its essence is collective mental programming: it is part of our conditioning that we share with other members of our nation, region, or group but not with members of other nations, regions, or groups. (Hofstede, 1983:76)

Hofstede's definition encompasses the group, which can be social, professional, regional, national, and so forth. Given the importance of both regional and national differences in alliances, the definition lends itself well to the present study. I will now try to disseminate the different parts that make up what we call a cultural fit, starting with the dominant logic that builds the different parts of the cultural aspects. Kiesler and Sproull's (1982) fifth proposition states that:

> Managers operate on mental representations of the world and those representations are likely to be of historical environments rather than of current ones (Kiesler and Sproull, 1982:557)

Kiesler and Sproull's proposition is worked upon by Prahalad and Bettis (1986), who argue that dominant logic is the way in which managers in a firm conceptualize and make decisions regarding their business. This logic is determined by managers' previous experiences and this knowledge – that they use – is largely unrecognized by the managers themselves. From a cultural perspective, this means that employees and managers act on a set of premises that is not well known or even recognized.

Prahalad and Bettis define dominant logic as:

> […] a mindset or a world view or conceptualization of the business and the administrative tools to accomplish goals and make decision in that business (Prahalad and Bettis, 1982:491)

This definition is very close to Hofstede's definition of culture (and this might be natural since they were published around the same time and worked with the same influences). It means that dominant logic, by and large, dictate how companies – that are run by managers – will deal with decisions according to "… a limited number of heuristic principles which greatly simplify the decision process" (Prahalad and Bettis 1982:493). This then in turn indicates that differences in culture between potential and factual partners are often a big challenge in the integration work. The challenge exists both on an industry level and an organizational level and when just discussing the partnership according to Sivadas and Dwyer (2000). Partners must be able to pursue and achieve business objectives while simultaneously building and maintaining strong and healthy corporate-to-corporate working relationship (Huges and Weiss, 2002).

The cultural aspects of why companies choose not to join in an alliance are often overlooked. Great cultural differences create challenges in the communication that, if coupled to no or bad personal relationships, may cause alliance failure. Difference in national culture can disrupt both learning between partners and damage the collaboration forthright (Parkhe, 1991, Lyles and Salk, 1996). However, differences in national culture cannot on their own cause failures in knowledge sharing according to Sirmon and Lane (2004). Organizational culture also has to be considered when discussing any

alliance success and failure according to Pothukuchi et al. (2002). This claim is supported by Clegg et al. (2002) who, with the help of Foucaultian neo-liberal values, maintain that creating a common culture with shared practical consciousness will help the alliance succeed. I would argue that that the national culture will be inherent in any organizational culture.

Interestingly enough, Sirmon and Lane (2004) argue that professional culture cuts through organizational boundaries, which would indicate that it is a stronger influencing factor than organizational culture. Organizational culture, in its turn, is stronger than national culture. This would entail that the professional culture supersedes these other cultures, which indicates a strong possibility that similar organizational cultures could fail in alliance ventures if they try to pair different professional cultures in the value creating activity of the alliance. This is not saying that national culture is not important. Hofstede (1991) argues that the influence of national culture is strong, and can explain 50% of differences in managers' attitudes, but in this work I will incorporate it into organizational culture.

The interesting part of this discourse around three types of culture is that Bettis and Prahalad (1995), nine years after their groundbreaking dominant logic paper, have evolved their thinking about dominant logic to be increasingly dependent on environmental driven organizational change. They indirectly argue that organizational cultures can be information rich with, what they call, the revolution in IT but be poor in interpretation of the system. (In this essence the system could be the industry in which they are operating). The take away from this is that organizations find it hard to change, and even when the organizations see changes taking place in an adjacent environment, they are unable to act. In other words, an industry could hamper change even if individual organizations see the need for the change.

One remedy to this problem, which can be found within culture as well as alliance theory, is social exchange. The need for social exchange is created by the scarcity of resources, whereby actors need to engage in dialogue in order to obtain valuable inputs (Avison and Elliot, 2006). Since social exchanges are commonly not regulated by contracts, the benefits they are supposed to provide tend to be more or less voluntary (thus similar in nature to alliances). The social exchanges are either restricted or unrestricted. According to Das and Teng (2002), the restricted social exchange occurs between two parties

who directly exchanges favors with each other, whereas the generalized unrestricted social exchange is regulated between a group of at least three parties, where there is no direct exchange of favors. This lack of direct contact between delivery of goods/service and recipient payment is what makes the unrestricted exchange special, and this is something that requires a great deal of trust.

The creation of generalized mechanisms, i.e. culture, puts in place different forms of social actions to resolve conflicts and monitor exchange, and it serves both as a deterrence for opportunistic behavior and as a tool to instill trust in all alliance members. From a social standpoint, the organization incorporates a culture in order to get a more automated monitoring capacity on alliances. This idea is present in the dominant logic thinking as well, where the automation aspect is represented by what Bettis and Prahalad (1995) call the information filter, i.e. the dominant logic whereby which managers and decision makers can sort, value and analyze alliances or, for that matter, general data. This logic, or filter, is then used to aid strategy development, which in turn is used in a feedback loop tied to the organizational culture[16].

According to both Parkhe (1991) and Child et al. (1992), managerial behavior will be affected by culture and this in turn will have an impact on alliance performance. The more culturally distant two firms are, the greater differences can be observed in overall managing of operations, e.g. in organization, strategic interpretation and employee expectations. Park and Ungson (1997) argue that the challenges facing international alliances, based on cultural issues, are at least partially due to the lack of shared norms and values. This view is shared by Brown et al. (1989) who argue that cultures (in this case on of the cultures is Japanese) with divergent social values cannot be blamed for failures of alliances. Some differences in culture represent obstacles, such as differing views on long-term goals and short term profits.

On the one hand, we have now established that diverse cultures can be a problem for alliances. On the other hand, we know that the value of an alliance partner lies in its different knowledge. This then is a two-edged sword.

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[16] Here Bettis and Prahalad (1995) discuss how organizations are complex systems where individuals' behavior of managers and employees create this complex system with each other, the environment and the organization as such. To me this is the same as organizational culture.

The value of the alliance partner is its knowledge and problem-solving abilities. However, the different professional cultures will have different ways of solving problems, and if this results in miscommunication, then it might be tempting to force the group to only work from one angle. This, as pointed out by Sirmon and Lane (2004), will reduce the problem-solving expertise within the alliance with at least 50% (depending on how many different professional cultures you have involved within the team.)

Sirmon and Lane (2004) further argue that cultural differences, regardless of origin, hamper and inhibit employee interaction between alliance partners. On the other hand, Das and Teng (2002) and DeTurk (2006) argue that different forms of social interaction will negate at least some of the potential negative impact of differences in culture, and ultimately a social exchange will if not assimilate cultures, then at least create a greater understanding for differences in culture (Daboub and Calton, 2002).

Having discussed culture from National, Organizational as well as professional angle, it would seem prudent to also shed some light on how ICT as a medium might change the potential impacts of the cultural aspects. Fernández et al. (2010) argues that too much prior research has put emphasis on a monocultural perspective or organizational behavior. They go on to show how individual culture (what I have termed professional culture) and traditions (what I have termed organizational culture) can influence business transformation. This notion is further strengthened by Philip and McKeown (2004). The key issue of Fernández et al. (2010) is their discourse around the acculturation[17] process of ICT. They argue that ICT used correctly will work as a catalyst for changes in culture by enabling the acculturation process. This catalyst role is mainly achieved in so much as ICT can work as a transferor, or diffuser, of knowledge. It is supported for instance by Avgerou (2010). She takes the thought full circle by discussing the role of culture in ICT innovation by both using Hofstede (1984) as an example of cultural differences being a barrier to change and Walsham's (2001) critique that such studies oversimplify what cultural difference mean to ICT. Avgerou comes full circle by arguing that neither ICT nor culture can be uni-dimensional. Cultures,

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[17] Acculturation is a type is cultural change that happens when two different cultures meet. By interaction there is an exchange and redefinition of each organization's or even person's culture. Given enough time and effort, new cultures will emerge and old ones will disappear. Fernández et al. (2010)

just as ICT, are constantly changing and being maintained, which would imply the acculturation that Fernández et al. (2010) discuss.

Looking to Walsham (2005) he argues that ICT is implicated in all forms of development, i.e. in how we carry out our work, how we interact in our free time, how we organize our groups and by default how our organizations work and how we create societies. Going from this "emersion" of ICT if you will, there is also a lack of common understanding, termed shared practical consciousness by Clegg et al. (2002), which will by all probability lower the ability to interpret strategic intent, thereby reducing or eliminating effective communication. Inefficient communication in its turn reduces trust and thereby further reduces any form of knowledge sharing, which is contrary to what Leidner (2010) argues in her article of the globalization of culture. Leidner drives the thesis that ICT plays an important role in cultural imperialism[18] in so much that it is both a product and an enabler to let persons and organizations access information (Leidner, 2010). Many alliances fail to achieve their goals since the partnering companies fail to see the difficulties of working together that arise from cultural differences (Madhok and Tallman, 1998).

This leaves us with the realization that alliances by and large are often about personal relationships, and that without personal relationships there is a high risk of alliance failure. In a world in which corporations are interconnected through strategic alliances, mutual trust is necessary and can only be founded on ethical conduct. This means that as organizations become more flexible, they must rely more on clan- and self-control and on strong cultures that emphasize autonomy, individual responsibility and ethical values (Daboub, 2002; IBM, 2006; Lou, 2007; Segil, 1996).

In conclusion, the theory presented here argues that similarities between organizational cultures increase alliance partners' learning, satisfaction and the effectiveness that they achieve in their interactions. You need to assess both partners' organizational culture and the potential teams' professional culture if you wish to have a successful alliance. Cultural conflicts might actually be professional culture conflicts, and since individuals are more easily influenced, any change to the individual should be easier to manage than a complete

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[18] "*In its earliest form, cultural imperialism resulted from one nation-state occupying another and, in the process, infusing aspects its culture into the local way of life*" Leidner (2010:70).

organizational culture change. Culture can help safe guard volatile situations since a culture based on trust can overcome problems that formal procedures based on monitoring cannot.

Table 4
Summarizing table of Culture

Influencing factors Cultural fit	Culture's role in an ICT alliance perspective	Relevant authors in the literature	Generated interview questions
Professional culture *Organizational culture* *Industrial culture*	Culture can help cut trough organizational boundaries to achieve alliance success. When culture is built on trust it can help overcome problems that formal rules and procedures cannot, and hence the opposite is true as well where culture can hinder alliance work. Difference in culture can disrupt both learning between partners and damage the alliance as such.	(Bleeke and Ernst, 1995, Brown et al., 1989, Child et al., 1992, Clegg et al., 2002, Doney et al., 1998, Lyles and Salk, 1996, Park and Ungson, 1997, Parkhe, 1991, Pothukuchi et al., 2002, Rottman, 2008, Simonin, 1999a, Sirmon and Lane, 2004, Smircich, 1983, Simonin, 1999b)	• What is the typical professional background of your employees? • How does the industry view change? • What is the typical professional background of your alliance partners? • How does your organization view technological change? • How does the industry as a whole view change and technological change?

Theoretical summary and a preliminary framework

The glue that ties all the different influencing factors together is a capability of some sort; let us call it an alliance capability. Without an alliance capability, or strategy for that matter, the company cannot hope to know how to focus its resources. If focus is too much on short-term performance, then there is a strain on the alliance, and consequently less focus is placed on how to manage and maintain alliances and thereby on nurturing any form of capability in that area.

Having a capability of any sort means coordination of resources. Companies may look to inter-firm collaboration in order to better co-ordinate different activities and to facilitate learning and knowledge sharing. Having an alliance management capability can be a source of competitive advantage. This

capability is increased with repeated alliance engagements over time creating a resource that can be used as leverage to enhance performance in other alliances. With this in mind, it would seem that companies need both visionaries and champions to drive individual alliance questions. The routines for handling alliances are often missing. The ability to discuss relationship breakdowns, i.e. situations where knowledge transfer and sharing information is not working, may require routines.

Rothaermel and Deeds (2006) define the alliance management capability as *"a firm's ability to effectively manage multiple alliances"*. They further argue that firms build the capability by engaging in many alliances over time, i.e. by collecting experience of how to run different alliances. This would indicate a form of path dependency, where repetitive alliance behavior creates an alliance capability.

Having an alliance capability could be argued to be the end result in learning about alliances. Alliance capability has been proven to increase stock value and increase firms' ability to develop new products. According to for instance Rothaermel and Deeds (2006), we need to understand how alliance-specific factors as well as firm-specific factors impact the potential alliance management capability of an organization in order to learn from our alliances. The typical ability to learn from an alliance is often dependent on the degree of similarity in dominant logics, knowledge bases, organizational structures and compensation policies. Greater similarity leads to a more effective knowledge transfer regardless if the knowledge is tacit or explicit. There are also arguments raised to indicate that a dedicated alliance function will serve as a mitigating factor when there are organizational differences.

If a capability exists, then it should have some measurable and tangible benefits. Even though many authors have argued that alliance capabilities exist and have an effect on firms, they have proven hard to measure. As pointed out by Godfrey and Hill (1995), many management theories have core constructs that are in fact unobservable, e.g. RBV and Dynamic Capabilities. What is needed is theorizing around what the observable consequences should be when unobservable capabilities are brought to bear, and those consequences should then be observable empirically. This line of reasoning has been applied to alliance capabilities by authors such as Rothaermel and Deeds (2006). They theorize that an observable outcome of alliance capabilities should be an ability to effectively manage a larger number of

alliances. In other words, if we train our capability, then we should be able to handle more alliances in an efficient manner without incurring increased costs.

The transfer capacity is a key dimension. Some go so far as to suggest that alliances involve little more than the transference of knowledge from one corporation to another. This, in my view, is perhaps to stretch it too far. Yet, without effective channels through which knowledge could flow back and forth, it is difficult to imagine alliances of a more serious kind.

Of course things are rarely as simple as that – maybe one of the greatest risks with alliance building and knowledge sharing in general is the risk of deskilling your organization by giving away intellectual property rights information. Opportunistic behavior and outright knowledge theft are threatening factors for any organization that has come to a point were communication within groups and on interpersonal level is a recognized way of working. This is of course why the governing of relationships is another integral part of the alliance capability.

In this chapter, I have highlighted different alliance types and the outcomes that can be expected from those alliances. Furthermore I have discussed different theoretical bases that build up the alliance literature. The key to understanding alliances and how they interact is to understand what factors influence alliances. I have categorized the factors into three main areas: *Cultural Fit, Relationship Governance* and *Transfer Capacity*. By examining the different factors that are said to influence and control alliances, I have gained some preliminary insights about how alliances can be used to transfer ICT capabilities.

For reasons of clarity, I have created a box matrix built upon the previous theoretical chapter that is illustrated in Table 5 below. It is meant to make the following empirical journey easier to grasp.

Table 5
Matrix of the factors identified in the literature chapter as relevant in ICT capability transfer

Transfer Capacity	Relationship Governance	Cultural fit
Characteristics of knowledge transfer: - *Causal ambiguity* - *Unproveness* - *ICT* *Characteristics of the source of knowledge:* - *Lack of motivation* - *Not perceived as reliable* *Characteristics of the recipient of knowledge:* - *Lack of motivation* - *Lack of absorptive capacity* - *Lack of retentive capacity* *Characteristics of the context:* - *Barren organizational context* - *Arduous relationships* - *Intent*	*Juridical/Agency* *Strategic fit/Steering* *Communication, ICT augmenting* *Attitude/Intent* *Trust as a product of the others*	*Professional culture* *Organizational culture* *Industrial culture*

Research methodology approach

Before starting the description of my methodology, it might be prudent to describe the research project at large. The Lusax19 project was, and is, a multi-disciplinary research program, focusing on the technological shift taking place in the global security industry, more specifically, the shift from analogue to digital solutions. In order to create an understanding of the security industry, the program originally ran for 5 years with myself and two other fulltime PhD students and two part time researchers. Even though the three researchers had different tracks to work towards, the first 24 months were focused around joint information gathering over a wide geographic as well as informational area. This created a lot of joint material that can be accessed for verification of developed models or theories.

This text focuses around the third track – that of alliance building. As I have argued repeatedly in this work, alliances are complex and non-linear constellations, which makes them hard to study from just one angle, resulting in me advocating a mixed approach to gathering the empirical data.

Alliances are generally seen as a potentially valuable strategy for companies. However, it has been hard for the industry as well as academia to accurately pinpoint both the meaning and the value of alliances within the international marketplace. The purpose of the thesis is to develop a framework that describes how alliances can be used to transfer ICT capabilities into an organization or a system.

This purpose will be reached by using a literature-based preliminary theoretical framework on a few empirical cases. During the construction of the preliminary theoretical framework, several factors were identified in the literature and discussed as having a significant impact on alliance building in

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19 Built on Lund (Lu), Securitas (S) (later to be Niscayah and later still Stanly), AssaAbloy (A) and Axis (X).

general. This chapter endeavors to illustrate the reflections and considerations that have taken place during the thesis process.

Background

This work focuses on the ability of partners who form alliances to create an environment for learning. More specifically, it focuses on how to gain knowledge on the subject of ICT in order to transfer this knowledge into the own organization as well as product line. The explicit purpose is to identify factors that drive the transference of ICT capabilities with the help of an alliance.

From a theoretical perspective very little has been done on alliance building within the field of Informatics, and virtually no work has been undertaken looking at creating, or obtaining, ICT knowledge. By analyzing different theoretical standpoints, a foundation to understand factors that influence alliances in general was laid above. The foundation enabled the development of a preliminary theoretical framework. The framework helps us to understand factors that specifically influence the processes around alliances formed to increase ICT knowledge and the transference of that capability. The approach of using theory in order to understand how "real-life" works is not new and was aptly described by Popper in the middle of the 20th century:

> Theories are nets cast to catch what we call 'the world': to rationalize, to explain, and to master it. We endeavor to make the mesh ever finer and finer. (Popper, 1959:37)

This study hopes to reach its objectives by studying two converging and collaborating sectors: the ICT sector and the Security sector. Both sectors have gone through rapid expansion and change over the past 20 years, and now we see a situation where the ICT sector is starting to infringe on the Security sector. This is very interesting since the digitalization of any industry has a documented history of changing the industry fundamentals, as has been argued in chapters 1 and 2. This has created a need for the security industry at large to learn about ICT and to do so quickly. We can already observe

alliances being formed with this objective, and we are likely to see an increase in the number of such alliances being formed in the future.

The challenge is how to study this phenomenon in order to contribute to an increased knowledge of how alliances work and how reality conforms to my suggested preliminary theoretical framework. Eisenhardt (1989b), Eisenhardt & Graebner (2007), and Siggelkow (2007) believe that it is preferable to actively select organizations and cases to study, instead of picking them randomly, so as to find exemplars that are extreme or even polar. Thus, a volatile market with two converging sectors should be an ideal marketplace to study. Yin (2003) furthermore argues that case studies are ideal when the boundaries between context (i.e. the situation at hand) and phenomenon (i.e. observable facts) are not clear or evident. This, in my opinion, also indicates that a volatile and/or unclear market is ideal to study for the purpose of this thesis.

In order to get a grasp of the security industry, the players operating within the industry and the new entrants trying to gain access to it, 68 open-ended interviews were conducted. The people interviewed ranged from security industry publishers, CSOs, Alliance managers, CEOs, CTOs and CIOs within security and ICT companies. These interviews constitute a background research that gives information on the industry and its overarching views on alliances. They enabled me to construct a questionnaire for a smaller quantitative study where 82 specific respondents were targeted to answer specific alliance questions. This quantitative study in turn allowed me to identify four potential case areas that could be studied. In parallel to working on case studies, an opportunity to do a larger quantitative study was presented to me through the contacts that were established over the projects initial two years. 27 quantifiable questions and 9 open-ended questions were sent out to Security Magazine's mail roster, comprising of some 38 000 recipients. However, only ten responses were recorded. It effectively illustrates the importance of actively selecting (rather than randomly picking) one's interviewees and cases. The industry is not willing to answer questions randomly, but rather through trusted contacts. Each of the different empirical approaches will be discussed in more detail below, but first a general methodical standpoint needs to be established.

Preliminary Theoretical Framework

The purpose of this thesis is to develop a framework that increases our understanding of alliances. It will be done both with the help of empirical data to validate the theoretical framework, i.e. through a form of hypothesis testing, and by allowing the framework to show things that fall outside of the framework[20].

In building my framework I have a view that builds heavily on a statement by Weick:

> The importance of a head full of theories is that this increases requisite variety. By that I mean that it takes a complicated sensing device to register a complicated set of events. (Weick, 2007:16)

Weick's comment motivates having a framework that encompasses both inductive and deductive reasoning. The idea is that you need to have knowledge about the object of study in order to make any sense of it. In that light it makes perfect sense to invest time and effort into understanding the security industry at large. I wanted to have an idea formed on what I was studying, i.e. alliances and ICT capabilities, and how the industry that I was going to base my theory on, worked. Yin (2003) gives support to this way of working, describing it as the starting point of any case study research.

A theoretical understanding also needed to be formed, i.e. a frame of reference that could be utilized to understand alliances in general and alliances aimed at transferring ICT capabilities in particular. This phase of the work can be said to be deductive, which according to Popper (1959), is a situation where you draw logically necessary conclusions in order to get a theory to test.

The empirical study was meant to give data that could be analyzed in order to increase the understanding of the preliminary theoretical framework. That work then needs to result in some form of conclusion and development of theory, which is the essence of research, i.e. to support, build or refute theoretical ideas and hypothesizes. Yin (2003) prescribes a pattern-matching

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[20] I could have had a discussion around inductive and deductive reasoning at this point, but suffice to say that what I am aiming for is to describe that my theoretical framework is built in order to allow for both aspects.

approach as the most desirable for case study analysis, which in my view comes close to the deductive testing of theories described by Popper (1959). This, however, is only part of what I need since my preliminary framework was not intended to be purely deductive[21]. The goal is to develop the framework with the help of empirical observations, which is an inductive[22] approach.

Quantitative and Qualitative Studies

There will always be a discussion around the two – quantitative or qualitative studies – as to which is better than the other. Generally speaking the two methods cater to different end goals and whichever you choose will likely be dependent on purpose and theoretical framework used (Fisher et al., 2004, Silverman, 2006). I would advocate that you need to use and utilize the best parts from each field in order to have as robust a framework as possible. You always have to do qualitative judgments on quantitative data, and you almost always use quantifiable methods to validate or strengthen your qualitative data. Stake (1995) lists three major differences between qualitative and quantitative studies that are of interest here, namely: 1. the distinction between explanation and understanding as the purpose of the study; 2. the distinction between a personal and impersonal role for the researcher, and finally 3. the distinction between knowledge discovered and knowledge constructed.

The research presented in this thesis, in all practical purposes, is based on casework. It encompasses both qualitative and quantitative data that are used to develop a framework intended to help describe how alliances can be used to transfer ICT capabilities into an organization or a system.

In this research, most of the empirical data were collected using qualitative methods, but a smaller quantitative study was carried out in order to both validate the qualitative interviews and to test the original theoretical ideas. It

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[21] Deductive reasoning is the type of reasoning that proceeds from general principles or premises to derive particular information, they are valid or invalid.

[22] Inductive reasoning is supposed to takes us ”beyond the confines of our current evidence or knowledge to conclusions about the unknown. This is done by doing observations that we formulate some probable conclusion around.

would have been a great bunce to be able to do a larger quantitative survey on the results from the qualitative work that was carried out. In an effort to get a larger data set to work with, a revised survey was constructed and sent out to approximately 35 000 specific subscribers of security magazines. After 2 reminders about filling out the survey less than 10 answers had been received. As I have discussed repeatedly within the work, the security industry is about personal relations, and on a general basis people are skeptical to sharing information on any subject if there is no personal relation. In the end I had to forgo the idea of a larger survey since it would require more recourses than the project had in order to collect the sought after data.

Case Research

Since a large part of my empirical data consists of four separate cases, a brief odyssey on what cases, as a method for research, can mean is in place. Kuhn (1962) uses cases as a way to give examples of the history of science when showing how there have always been crises that resulted in paradigm shifts. Weick (2007) uses a case to illustrate how richness of theory can help fight hubris and increase the requisite variety.

During this research we have had great access to both sectors (Security and ICT) on a company-to-company basis as well as through different joint industry organizations. Robson (2002) verbalizes his view of a case study as:

> … a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within a real life context using multiple sources of evidence. (Robson, 2002:178)

My good access into two different industries, i.e. the possibility to use a multitude of sources, supported the decision to use cases as a large part of the empirical data gathering. The problem of gathering any volume of reliable quantitative data gave further support to my choice of method.

The research question is focused on factors within alliances that help to transfer ICT capabilities and how they influence the alliances. Yin (2003) argues that case studies are appropriate when the unit or object being analyzed is a complex social phenomenon where "How" and "Why" questions are

predominantly being answered. The how and why of case study research fits in well with alliance building. Alliance building is closely associated with interaction between organizations and people, and there are seldom clear cut answers but rather a social interaction to be observed and understood between individuals.

Despite concerns around case studies not being theory generating, case studies have proven to be suitable when and where theory is not well developed (see e.g. Yin (2003) and Eisenhardt & Graebner (2007)). Since this work is focused on understanding a complex phenomenon that lacks theoretical base, it would be prudent to do case research around it. That being said, it is also a good idea to use a mix or multitude of different methods in order to validate and support findings (Cavaye and Christiansen, (1996); Dubé and Paré, (2003); Eisenhardt, (1989b)).

In summary, the four key reasons to choosing case research are:

- The complexity of the research purpose
- A rich theoretical framework with many possible influencing factors
- The relative proximity and ease of access to case data
- The relatively new area of research

Choosing cases

In order to get as much of the polar cases described earlier as possible, it was important to device a way of identifying organizations that could offer cases that were as dispersed as possible but still held an interest in alliance building and the industry as such. By using both ICT and Security companies and a mix of companies that are considered good as well as bad at alliances, there was a good chance that polarity would be reached. The research centers on alliances that are made in order to achieve ICT knowledge[23] It was therefore important to have both security players striving for new knowledge and ICT

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[23] The exception to this is the fourth case that started as a pure IT venture with the indirect aim of augmenting ICT knowledge and usage within the physical security industry.

players presumably possessing the knowledge. The ICT players also needed to be willing to align in some way, thereby giving up some of their knowledge.

Examining the cases they all fall within the alliance categorization I define in chapter two, i.e. collaboration between two or more parties aimed at reaching common and individual objectives. That being said I would argue that some of the participants within the cases would not typically categorize their collaboration or partnership as an alliance but that comes down to what you put into the nomenclature of the word alliance. This is also quite typical for the alliance field as discussed in chapter 2.

Each case was unique in itself, but of course I was hoping that there would be overlaps in order for me to see a saturation of answers. In all probability, the work could have been done with fewer cases than the four used, but going back to the relative proximity and ease of access, it seemed prudent to maximize the available data sources. As far as the number of IT companies is concerned, two participated: Axis considers themselves an IT company that offers network video, and Cisco can only be described as an IT company.

Choosing interviewees

This work is heavily dependent on interviews. They constitute both a considerable part of the empirical material used both for the framework development and for learning and understanding the two sectors ICT and Security. Thus the interviewees could take on both the respondent role and a role that Yin (2003) describes as the informant. In that role they gave insight and information outside of the intended scope, which helped the researcher to do some leapfrogging of ideas and notions.

During the first three years of the research project, 104 semi-structured but in-depth qualitative interviews were conducted. This includes the original 68 interviews that laid the base for understanding the security industry as the object of study. The semi-structured interview form was used since the goal was to get the interviewees to describe issues and thoughts with their own words. I was also keen on detecting any personal feelings and emotions the respondents might have on the subject of alliances and ICT, which is

something Bryman (2006) also voices as a strongpoint of semi-structured interviews.

Acknowledging the fact that alliances as a phenomenon is largely about interaction between companies and people, it is helpful to see that for instance Silverman (2006) argues that interviews can be treated as observations of how people interact. I was fortunate to work in a team of researchers in this project, which often let us have more than one researcher present at interviews. This assured both a possibility to do observations and a chance to discuss and evaluate interviews as they progressed.

Silverman (2006) argues that even more important than how you select your interviews, is how you conduct them, or more specifically, that you follow some protocol in order to have similar ground rules for all interviews. During the first year, a shorter set of standardized alliance topics were used in order to get the interviewees to start discussing alliances and their views on alliances, see appendix 2. I chose to conduct the interviews in this manner in order to let the respondents keep to an open-ended discussion. It was particularly important to understand the marketplace and influencing factors in the beginning. A longer set of questions (appendix 3) was used when possible, but considering it often takes close to two hours to go through it properly, it often proved to be unpractical.

Operationalization

The subject, i.e. alliance building in different forms, has been researched quite extensively within business studies. Less work has been done on alliances that strive to gain some specific knowledge and an even smaller amount on alliances in and around ICT knowledge.

In chapter two, the preliminary theoretical framework of factors that are thought to influence alliance building was discussed in order to know how to operationalize the factors.

The work of operationalization was done a number of times in order to try to organize alliance factors and their definitions as given by different authors, see table 6 below.

Table 6.
Initial operationalization of alliance factors

Factor	Definition	Relevant authors
Absorptive capacity Tacit knowledge Explicit knowledge Individual knowledge Path Dependency	The ability to recognize, assimilate and use new information Knowledge that either does not need expression or that is hard to codify and translate to an other person or organization Knowledge that is codified and can be expressed to others through some media Indicating if the actual person has intrinsic knowledge that can be applied within the organization The firms ability to recognize and utilize the inherent value of alliance learning is path dependent	(Davidson and Olfman, 2004, Scott, 2000, Kale and Singh, 2007, Mowery et al., 1996, Cohen and Levinthal, 1990) Naumenko et al., 2005, Dutta and Weiss, 1997, Khanna et al., 1998, Anand and Khanna, 2000, Kale and Singh, 2007, Mowery et al., 1996) Inkpen, 2000b, Becerra et al., 2008, Nonaka, 1994) Grant, 1996b, von Hippel, 1994, Spender, 1996) (Cohen and Levinthal, 1990, Teece et al., 1997, Eisenhardt and Martin, 2000)
Communication skill Common language to interpret experiences Multiple communication channels	Interpersonal and small-group communication, can drive system change Acknowledging the fact that knowledge residing within members of an organization are an important resource that needs to be shared for learning to occur and this needs to be done with a common language	(DeTurk, 2006, Clegg et al., 2002)Grant, 1996a, Grant and Baden-Fuller, 2004, Kale and Singh, 2007 Davidson and Olfman, 2004, Villas and v.A. de Macedo-Soares, 2007)

The first operationalization was not the end product of the theoretical understanding but rather the beginning. In a second attempt to further operationalize the theoretical baseline of the alliance literature, I tried to further reduce the overall number of alliance focus points. I finally ended up with three, namely Transfer Capacity, Relationship Governance and Cultural fit. For each focus point I then transferred in all the different influencing factors that I had found. Before trying to identify overlaps, I had a number of factors that were similar or the same with different names.

The final result of the operationalization can be seen in the theoretical chapter, where the factors and the interview questions generated with them in mind are listed as guidelines to the theory discussed at the end of each segment.

Data collection methods

It has been said that the title of a thesis is the first and last thing that gets crafted. This might be true but identifying a viable research question is also an integral part of any research work (Yin, 2003). To me formulating the research question was really only the first step towards understanding what information to collect with empirical data. During the research, three qualitative methods, two quantitative surveys, and a desk research study in the form of an analysis of yearly reports, industry reports and Web Pages from both industries have been used to gather data. This takes full advantage of the possibility within research to use a number of different methods to collect data for later analysis as described by for instance Dubé and Paré (2003) and Yin, (2003).

During the course of the research, the different methods were used together or by themselves depending on where in the research cycle the work was. Below the different methods used are discussed.

Interviews

During the thesis work, a total of 104 qualitative in-depth interviews were carried out in North America and Europe. 62 interviews are what I refer to as initial interviews and 42 are main interviews. After the interviews, 4 cases studies were conducted. During this time, 22 different C-level executives within ICT and Security were interviewed and more than 70% of them were interviewed more than once. More than 100 hours of measured interview time was clocked making the average interview more than 60 minutes long. The interviews took different shapes depending on the setting of the interview and the number of people partaking from the interviewer side as well as the interviewee side. Most often the interviews were of an open ended nature in order to keep the respondent in what Yin (2003) calls the "informant" role. The informant can provide the researcher with insights to the company as well as the industry, but more importantly a well-executed interview provides corroborative evidence that goes outside of the intended theoretical framework, which goes back to the sensitizing aspect discussed earlier.

By using the interviews as "conversations" where respondents were allowed to stray from the alliance theme for shorter or longer periods of time, other less obvious factors started to emerge. Typically an interview would start with

"*what is your view on alliances?*" or *"How would you define an alliance?"* I had a number of "starter" questions that could then be followed by more specific questions around factors that influence alliances. About half of the interviews were recorded. The low number was partly due to noisy interview environments at conferences, but also to the fact that security personnel are not always keen on being recorded. For the non-recorded interviews notes were taken instead. For a full listing of the interviews done, see appendix 1.

Case Studies

The way the cases were chosen has been discussed previously in this chapter, but I would still like to quickly touch on the subject of alliances in conjuncture with the cases. The cases all describe different forms of alliance building with strategic intent, but I would argue that whether or not the alliance was thought to be strategic or not is of little importance compared to how the alliance partners actually worked and acted within the alliances. This will be described within the empirical chapter.

The four cases (Assa Abloy-Cisco Systems (Hi-O), Niscayah-Axis, Lenel-inFront-HID and the ONVIF alliance collaboration for standards within IP cameras) were studied based on an initial theoretical baseline accounted for in chapter 2. The main inquiry method was semi-structured interviews (see table 11 for distribution between cases). The average time of interviews was 90 minutes, where all but three of the interviews were made during a physical meeting. 50% of the interviews were recorded, transcribed and analyzed with respect to the categories suggested by the initial theoretical framework (i.e. reason for alliance building and influential factors for the alliance).

Table 7
The four cases of Security – IT alliances

Security comp.	IT comp.	Initiation	Number of Interviews	Objective	Outcome
Assa Abloy	Cisco	Both	6	Connect doors to IP network	IP-connected doors provided to customers
Niscayah	Axis	Axis	6	Train Niscayah on IP cameras	No training yet
Lenel, HID	inFront	Lenel	5	Bridge physical and IT security	Components from both domains integrated in a new platform
Onvif	Axis, Bosch, Secure-i, Milestone	Axis	5	Initiate a joint standard by creating the ONVIF organization	Onvif up and running with 12 full members, 12 contributing members and 70 + user members

The actual interview questions were based on the same questionnaire (see appendix 2 and 3) as the initial interviews described in 5.1.1. The aim was to get the interviewees to speak as freely as possible to describe their alliance views as well as the problems and ideas they associated with alliances, both alliances in which they were currently partaking as well as alliances in general. The goal of the case studies was to:

a) test findings from previous interviews and surveys and

b) get further insight in beliefs and values that are present in the different organizations and how they influence the alliances.

Even though the cases have different merits and were picked for being different, the order they are discussed in also indicates their weight towards testing the framework.

Hi-O Case

Hi-O, or Highly Intelligent Opening, is a concept for electronic door solutions that simplifies installation, service and upgrade for devices such as electric strike, proximity reader, door automatics, etc. It is thought to be a plug and play installation. The alliance intended to make this possible was originally started by Assa Abloy and Cisco. They initially ensured good access to interview persons, but as the alliance started to fail, it got harder to get interview times.

Niscayah and Axis Case

In this alliance with two out of three partner companies, the original thought was to identify possible synergies between the companies. The alliance was never classified as an official one. From the first day of the project, the two organizations tried to get benefits, e.g. better prices, training or customer leads, from each other under a partnership umbrella. Axis tried to get Niscayah to use more of their academy courses in order to raise the general awareness of ICT within the organization. Niscayah tried to get lower hardware prices by circumventing the Axis sales structure. The partnerships ambulated between sales channels, education and market penetration. This alliance gave a good number of interviews during the whole thesis process.

Lenel HID inFront Case

The Lenel HID inFront is a partnership that is outside of the partner companies, even though HID is owned by Assa Abloy. This is a formal partnership called OnGuard® that includes a multitude of partners, but I only interviewed these three. It was of interest since it proclaims turnkey solutions for ICT and Security solutions and integration.

ONVIF Case

ONVIF (Open Network Video Interface Forum) is an open industry forum for the development of a global standard for the interface of network video products. The ONVIF specification will ensure interoperability between network video products regardless of manufacturer. I got to take part of the different ONVIF white papers and do interviews with key people within the ONVIF organization. One of the leading organizations behind the ONVIF standard is Axis, which is why it was a suitable case for my research purpose.

Observation

Direct observations were carried out at all tradeshows and at a few onsite case studies of security installations with different technological complexity. More overt observations were carried out when the different partner companies would allow us (the Lusax team) to participate in customer/alliance meetings at different venues as independent observers. Looking to the Lusax team we tried to be present with at least two representatives at all of the major tradeshows, and after each such event the team would have sessions where we would share findings as well as observations made in different settings and formats, e.g. what was now on the show floor, what had been said in different meetings attended etc. On a few occasions another form of observation was used when two researchers had the opportunity to interview a person jointly. Then one researcher would have the role of the interviewer and the other one would be a mostly quiet observer.

Overall, the observations were very beneficial in the aspect of validating alliance problem areas. At least partial insight can be gained by looking to rationale and argumentation used by participants, as has previously been pointed out by Marshall and Rossman (1991).

One very interesting observation that came over time was that all interviewees showed an openness right from the start, but as the research team became more recognized within the industry having been seen at all major tradeshows for more than two years, there was a change in the candidness and depth of discussions. At this point a bit of speculation could be valid since the two former statements of candidness as well as the depth of discussion to my belief hinges on a number of things: a) the fact that a certain level of trust had been built between the research team and the "industry" at large allowed for more information being passed on, b) the fact that the research team got more knowledgeable of the industry and individual companies as well as specific individuals meant that sharper, more penetrating questions could be asked, and c) the two previous facts meant that the researchers could both match answers on the spot and ask more uncomfortable follow-up questions.

All of the above mentioned insights were used in the later interviews since it allowed for additional information to be gathered to validate the framework and, more interestingly, to find things "outside" of the framework. Maybe the greatest help from this development was a later realization made when the data were being transcribed. At that point, the observations helped to interpret

data, more precisely since it helped reset the mood of the interview. Such help is especially important when the interviews are not transcribed the same day as the interview has been conducted, which has previously been noted also by Silverman (2006).

This is of course a somewhat dangerous statement to make since it is one of the arguments against both case studies and semi-structured interviews. A risk for sloppiness and a lack or rigor has been argued previously. It is mostly naïve to think that you can do anything without using a frame of reference and using the theoretical as well as practical knowledge you possess. The best you can do is to be aware of the risks and act accordingly.

Survey

During the research a smaller quantitative electronic survey was carried out. It ventured to increase the understanding of what factors drive alliance success within the security industry as compared to the factors already established in the qualitative interviews. The survey endeavored to map *Views on, Reasons for, Results of* and *Driving forces* (i.e. critical factors) behind alliances (see appendix 4). The answers were ascribed numerical values ranging from 1 to 7 in order to be able to get mean values out of the survey. This was done to test if the perceived important factors for alliance success would differ when answered by putting numerical values to smaller subset of questions.

There were 78 recipients in this global statistical survey. The recipients were dispersed in a broad range of security and IT companies that are all involved in the security realm. The recipients had all been interviewed at least once by the researcher, which probably lead to the higher than normal response rate. There were 39 respondents, which gave an even 50% response rate.

The background variables were age, sex, level of education, position held and industry affiliation (ICT or Security). The following questions were divided into segments that were intended to help me and the recipients to categorize the questions.

Desk Research

During the entire research period, there was extensive desk research in the form of reading trade magazines, online reports from companies such as Lehman Brothers[24], SIA, ASIS, ISACA and so forth. As has been mentioned previously, there was also an initial drive to learn about the important industry leaders. The learning was accomplished by taking the ASIS top 500 list and visiting two thirds of the companies' Web Pages. The object was to get a quick understanding of which companies did what, who they might have an alliance with and why. This gave little in an academic view, but it increased my general understanding of the industry and it enabled me to get a better security and ICT vocabulary as well as a better understanding of the convergence between the two industries.

Analytical method

The awareness of the frame of reference's importance complicates the interpretation and analysis of the empirical material. It is important to understand that all respondents use their own experience and knowledge when interpreting problems and answering questions during interviews. Since more than 70% of respondents were interviewed more than once, they had the possibility to change their frame of reference based on previous feedback from the project.

Having concluded that whatever you do, there will be some form of bias, where you as a researcher will form and influence the findings by your own frame of references, I decided to use Yin's pattern-matching approach. The approach allowed me to match the empirical findings with the theory that constitutes my model. I also utilized Popper's net casting analogy around theory. The pattern-matching approach together with the net casting allowed me to explain my empirical findings.

I analyzed the data in an attempt to identify the factors that influence alliance building in general and factors standing out in alliance aimed at gaining ICT

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[24] The first two years of the research Lehman Brothers and Jeff Kesler stood for the premier security and convergence research report.

capabilities in particular. As has been discussed earlier in this chapter, a number of different data gathering techniques were used, which lead to a situation where continuous analysis of the data was required and where the pattern-matching approach lead to changes in the second survey questionnaire. The fact that by the end of year three most respondents had been interviewed twice, created a need for follow up questions. Changing market space had to be taken into account and, more importantly, changing relationship between respondent and interviewer.

While going through the transcriptions I tried to both find exact words or quotes that matched the factors in my framework, and on top of this I also interpreted sentences in order to find matches. An example of how I went through the text and matched it to the framework is shown in the following two pictures:

Figure 4.
An example of net casting within the text.

Figure 5.
An example of how the net casted is matched with the framework.

AXIS — NISCAYAH

Transfer Capacity	Relationship Governance	Cultural fit	
Characteristics of knowledge transfer - Causal ambiguity - Unproveness - ICT *Characteristics of the source of knowledge* - Motivation - Reliable *Characteristics of the recipient of knowledge* - Motivation - Absorptive capacity - Retentive capacity *Characteristics of the context* - Barren organizational context - Arduous relationships - Intent	- Juridical/Agency - Strategic fit/Steering - Communication, ICT augmenting - Attitude/Intent - Trust as a product of the others	- Professional culture - Organizational culture - Industrial culture	National Culture

Validation and Reliability

All research is ultimately subject to a discussion of reliability, but whenever a case study is conducted there seems to be more of a discussion. Many scholars would even argue that quantitative research is the only way to ensure reliability (see e.g. Yin, 2003). In this research, 104 interviews were conducted over 40 months, creating a good base for reliability by cross-referencing interviewees' answers, ensuring a better grasp of potential errors or biases. In qualitative research, reliability indicates to what degree the research process has been systematic and transparent, in essence if the data collected is reliable and if we can see how it was collected. By making the research process as such more accessible to outside viewers it is deemed more reliable according to Silverman (2006). Others such as Eneroth (1997) claim that reliability is about trustworthiness of the data, which can be achieved either in a very structured historical review of patterns of decisions, events and actions taken as suggested by Van De Ven and Poole (1990) or by triangulation of multiple

comparison groups as described by Glaser and Strauss (1967). In all probability, a mix of methods is likely the best approach when you are trying to answer the "why?" and "how?" type of questions of this thesis (Jick, 1979).

Regardless of method there are other considerations that need to be made as claimed by Miles and Huberman (1994) and Eisenhardt and Graebner (2007), e.g. the need for consistency within the research, especially in relationship to other work. To ensure consistency, I have tried to describe how and why I have collected data, and in the following chapters I present said data in a transparent and illustrative way. In order to reduce possible dependency criticism, a number of interviews were conducted with the same person over a 30 month period. Multiple sources within the same company were used when possible, and finally certain verifying questions about competitors were asked to investigate if the self-portrayed image was the same or similar to that of the view the competitor had. This work enabled me to triangulate much of the collected data, which was also a big help when the pattern-matching took place. Some data appeared to point in different directions, but by triangulating I could discern that respondents were in fact discussing the same factors, only from different views.

The validity of the research is harder to address since according to Yin (2003) external validity requires the research result to be generalizable beyond the immediate case study. What this means in practice is that for the present study to be valid, the results should be generalizable for other cases or even for other industries. Taking Porters 5-forces model as an example, this works because of its utter simplicity. The more general and generic a result, the easier it will be to generalize around. As has been stated previously, I have a complex purpose with a theoretical model that is rich in factors. Even so it will have some generalizable findings that are usable in other industries.

Here it would seem more prudent to use Glaser's (1978) way of measuring validity, which is through *integration, relevance* and *explanatory power.*

Integration: How can the theoretical foundation be illustrated as relevant and interconnected with the claimed factors for alliance influence? By pattern-matching, triangulation and continuous evaluation of the data, the theoretical model changes over time until it reaches its current shape and the form that best illustrates the current market values.

Relevance: Has the research hit a resounding tone for others within the theoretical alliance community, and can the model be used for further research? In my case, the initial framework was based on a vast theoretical base. Empirical data were subsequently used to hone and alter the framework in order for it to have applicable power for at least the security industry but hopefully other industries as well.

Explanatory Power: Can the research be used to explain the phenomena that are addressed? During the four years of the research there have been numerous feedbacks to the industry, which have both explained and validated problem areas within the security industry. The alliance model build from this research has not been used outright since it is a result of the work in itself. However in my opinion there was a strong degree of explanatory power in both the empirical data collected and how the Lusax team as a whole was able to present this over time, but more on this later.

The strongest validity and reliability claim for this research is its embeddedness in a strong research team. The overall research took place over five years with five researchers who had access to each other's data. This in turn has ensured both a possibility to cross-check data and triangulate across interviews. During the research period, at least two internal conferences have been held each year, where preliminary finding have been discussed in detail by both researchers and industry experts. Finally a number of white papers have been published from each member of the research team in order to document findings along the way.

Security Industry Development

Throughout the thesis, I have argued that in order to understand the empirical data collected, we also need to understand in which context they have been collected. An above average understanding of how the security industry at large perceive and talk about alliances and ICT as phenomenon is also of interest. This chapter will shed some light on how the physical security industry works and thinks, which will hopefully help the reader understand how I have connected the theoretical framework with the empirical data collected, which in turn will be described in the next chapter.

Security and ICT convergence

For a long time the security industry was a small, homogenous and virtually isolated sector, at least in terms of technology, products, customers and industry participants. The security function of most organizations has been viewed as a support function and not a profit center. In short we are used to see security as a source of cost, not a source of strategic concern. The introduction of IT into the physical security industry creates a number of interesting scenarios in both micro and macro perspective, which will be discussed further on in the text. It is a truism that IT has a history of being able to penetrate and radically change new domains of applications as described by among others Mazur (2008) and Rhaume & Bhabra (2008). There are countless examples of how IT has changed market conditions for "traditional" industries and markets with cataclysmic changes in the wake; examples can be found within banking, printing, media as well as the film and music industry as has been mentioned in previous chapters.

Yet another evidence of this was Rupert Murdoch's claim at the World Economic Forum in Davos (2009) that the advancement of the US economy and even the world economy can only come about by companies sharing

technological knowhow. It is especially interesting for the physical security industry that is currently facing a discontinuous technological change mainly driven by the increasing pervasiveness of IP networking. As mechanical and analog security products are IT and IP network enabled and whole product segments are shifted onto digital technology platforms, major IT players as well as smaller, innovative entrants are increasingly targeting the security sector. This convergence of two hitherto separate industries is leading to the blurring of previously clearly demarcated industry boundaries.

By fundamentally altering the competitive landscape, convergence will have a profound effect on the physical security sector. The risk, from the incumbent's point of view, is that when IT players enter the security market, they will cherry-pick the most advanced and profitable technology segments where they are most likely to leverage their IT capabilities, leaving incumbent security players to scramble over lower margin legacy market segments and less profitable projects and customers. IT as a segment has always influenced the profit margins in the segments where it has become a de facto standard, often resulting in lowering price points as well as margins. On the other hand IT often enhances and enlarges the market since it enables more and new producers as well as more and new customers to participate (Sari et al., 2007, Swansson and Ramiller, 2004, Taylor and Williams, 1994).

At this point in time we are far from this scenario. The security industry is traditionally and, by its very nature, highly conservative on both the demand and supply side, and new technology trends spread slowly, especially when compared to the IT industry. Consequently, most security incumbents seem to be adopting a wait-and-see approach, perhaps hoping or betting that a full-blown IT convergence scenario will never be realized or at least be gradual enough that they will have time to adjust. On the other hand, many entrant IT players are convinced that convergence has already gathered the momentum necessary to radically turn the industry upside down in a matter of a few years.

In the following I discuss the ongoing convergence and how it effects organizations and stakeholders. The Lusax team at large has worked with convergence from a number of perspectives: Demand and Supply, Integration, End-users and alliances. But here we will focus on the overarching avenues of change that the convergence brings about for the security as well as IT industry and how alliances can affect this convergence.

Convergence

The use of the term *convergence* in the security industry can be confusing, as has been shown by Weaver (2007, 2009b). It is a truism that the word convergence is bandied about quite freely within the market-space. In many instances convergence as a phenomenon is used to illustrate two separate and yet overarching issues: *(1)* how security work and processes in enterprises should ideally be organized and *(2)* the technology, systems and solutions needed to achieve these goals. The problem is that convergence can have many different meanings depending on the context in which it is used.

Weaver (2008) describes what he calls a convergence matrix with two overarching verticals (Demand and Supply side convergence) that have three separate subcategories each as seen in table 7 below.

The matrix as such is quite self-explanatory and a good way of trying to bring order into a complex situation. As the table illustrates, the convergence is happening on many levels of the security industry, but what the table does not show is that in some ways there is a feedback loop towards the IT industry. The IT industry is getting more and more attuned to the physical security issues. Convergence within the security industry is a multi-faceted phenomenon where none of the types of convergence described are mutually exclusive (Pierce, 2010). Looking just to the supply and demand side of the convergence, you can view them as indications of the changing trend that is taking place between two industries.

Table 7
Convergence matrix, Weaver (2008)

Demand side	Supply side
Organizational security convergence • Unified security approach spanning people, processes and technology • Tearing down silos between physical and information security and IT • Introduction of a C-level management position (e.g. CSO) overseeing both IT and physical security • Integration of physical security and migration onto IP network platforms *International convergence* • Internationalization leads to a homogenization of needs and customer preferences across markets • Increasing demand for cross-border security services *Public-private convergence* • Blurring of lines between public and private security – e.g. public video surveillance • Convergence of public and private databases and information interfaces	*Technological convergence* • Integrative technological platforms: Moore's law, miniaturization, intelligent devices, software • Internet (TCP/IP on Ethernet) as a *de facto* communications standard *Product convergence* • Convergence in substitutes: Separate classes of products become interchangeable (substitutes), e.g. digital and analog cameras • Convergence in complements: Previously unrelated products are bundled together to form new, value-added class of products, e.g. integrated security systems *Industry Convergence* • The merger of two or several hitherto separate, industries, e.g. physical security, IT, building automation • Convergence in substitutes may lead to 'creative destruction' where innovative entrants replace dominant incumbents • Convergence in complements may lead to a blurring of industry boundaries; alliance seeking; vertical integration

One example is that a traditional security integrator typically faces a knowledge gap when striving to offer qualitative, competitive offerings of new IP- and IT-based products and services. This is what has been called the ICT phenomenon in earlier chapters. The security companies are trying to find alliances and partnerships that will help them both with understanding the new productification of old offerings and, more importantly, how they can build new products and services based on what ICT can do (Pierce, 2009).

The knowledge gap as such has its origin in the fact that integrating complex systems such as POS[25], Logistics, Accounting, regular IT and Security into one coherent and interpretational system is difficult for anyone. Considering the many examples of failed ERP[26] solutions, it is not surprising that the security-industry hesitates. It is not used to ICT systems in the first place (Weaver, 2009b).

It is quite clear that the two types of players have their different strengths and weaknesses. The traditional security integrator typically has a competitive advantage in strong and often personal customer relations where the IT integrator will typically know the ICT software and hardware better. This of course is a classic example of a knowledge gap that can be exploited for good and for bad.

Today we have a legacy of analogue and proprietary based security systems, and they will be in place until it makes sense (either economically or qualitatively) to change them. At the same time we are seeing new installations that embrace using IP technology fully (Weaver, 2009a). Being able to sell IP-connectable security products, such as integrated access control and surveillance, has started to become a competitive advantage. The integrators' or installers' ability to show returns on investment (ROI) is also becoming a relevant matter. Since the systems will be more and more integrated, you need to be able to both understand the economies of scale and scope and show them to the customer. The "sell" is no longer to the typical security director, but rather to the C suite of executives as well as the CTO and CSO (Weaver, 2009b).

Integrating two businesses

To date there have been some constraints on IP investments that include *price and quality of products, price and availability of storage* and *price and availability of bandwidth.* But just as we have seen in any market where IT is involved, Moore's law comes into play, i.e. quality has gone up and prices down. We

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[25] POS: Point Off. Sale

[26] ERP: Enterprise Resource Planning

should hit some threshold within the near future where the only logical business sense is to go fully IP (Lusax, 2010).

The future security integrator needs to be comfortable in a situation that calls for sourcing, selling, installing and servicing IP and IT products. To be able to do this competitively requires much more than simply being technically aware of the new technologies and their applications. You also need to understand what can and cannot be done with hardware as well as software and how they can be interconnected (Lahtinen, 2011). Furthermore you need to understand the business end of things. Since the complex installations tend to be costly, there is a need to build in a ROI architecture in the sales process. It is imperative to show how the customer will earn returns with the new and complex system, not by comparing hardware functions e.g. with an Onvif enabled IP camera as compared to a proprietary based analogue camera, but rather how it is expected to create better returns by going IP. It is the overarching or encompassing functionality of the new system that needs to be showcased, i.e. how computers, telephones, access points, servers, VoIP gateways etc. will work together to create a better, faster, more secure and cost-efficient solution.

The security integrators, who should be the natural pole-bearers of convergence, have one strength over other players, which is that they know the legacy systems that are in place and that will continue to be in place for the foreseeable future. This means that a) there will be a lot of hybrid solution over the next decade, and b) no new system will be installed without the knowledge gained from the old legacy system. In other words, any new procurement will be guided by the old system even if it is being replaced. It will be the integrator's job to explain the advantages of the new ICT based security system.

One weakness that the security integrator has is that selling to the IT and executive communities is very different from selling to the traditional security customer. This is partly due to the fact that the ICT enabled security system encompasses so many different systems that need to be interconnected. The uses of these systems typically belong to different verticals within the company, and overall the software belongs to the IT director as well as different C-level members, e.g. the CFO, CIO and the CSO. This means that the integrator needs avenues that lead to these persons as well as an ability to discuss solutions that are relevant to each C-level (Weaver, 2009b).

Overall the challenge facing the integrator is in acquiring new competence, be that through M&A, Learning or alliance building. The knowledge gap is present in many areas, but is most obvious when talking about the potential of convergence of different systems within operations (Weaver, 2009a). It should be of interest to most players to do business-model analysis of different available concepts. By analyzing the different market segments and what competitors in the same and other markets have done, you can build requirement-models and from them create value-chain models, organizational models as well as get an idea of resources required. By mapping the different concepts and market segments, it will be easier to lay out a roadmap for action. The technical skills needed are fairly explicit and not impossible to develop in-house through training/education, recruitments or different alliance constellations, but the sales cycle with value added arguments and strategic understanding of the integrated systems is more tacit and hence harder to achieve. Tacit knowledge takes time to generate; both education and hands-on training is required. It calls for different hybrid solutions, e.g. training and classroom education, mergers with companies who have the skills required and/or alliances with key knowledge holders (Pierce, 2008).

Convergence from the End-User perspective

The value of data generated from security systems needs to be recognized by business critical departments. Consequently, the challenge for the industry is to stress value beyond security to either security/LP[27]/finance or other departments. This creates a new form of sales strategy that needs to be addressed. It is not all about selling cameras, access control or software, but to sell the idea of integration and system services and what they can offer different departments within the organization on the bottom-line.

> Project management is a key factor to success for any business, but even more so for large security installations. This means that you won't create value for the customer unless you have this figured out. (Dan Moceri, Convergint)

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[27] LP (Loss Prevention)

Since ASIS 2006 we have seen surprisingly few M&As. Pelco and TAC, AssaAbloy and iRevo, Cisco and BroadWare, were some of the exeptions. Also there have been a few larger alliances declared, e.g. Cisco and AssaAbloy, IBM and CNL and so forth. The industry as a whole is still growing or expanding with double-digit numbers each year, and the IT/IP segments even more so. Why have we not seen more M&As and alliances within the industry? It might be that organizations feel that organic growth has been able to keep pace with market development. Taking the previous knowledge gap discussion into account, it might actually not be a correct conclusion. We should see more alliances and M&A if nothing else just to close the knowledge gaps that the industry has identified so far. Two comments from experts in the industry give one of many possible answers:

> Companies in this business need to focus, very few are focused (Severin Sorensen, Security consultant)

> You need to understand focus! If you do not have the same focus your alliance will not work. (Bud Broomhead, Intransa)

Considering that the typical retailers or operators mostly use video surveillance for legal protection, for example against slip and falls and to reduce shrinkage, i.e. loss prevention, it could be argued that the end-users do not see or understand the value of the potential extra services offered by running all installations on one IP system. This in turn would indicate that neither the security department nor other departments at the end-user side have the knowhow to see the full potential of an integrated security system. It offers value beyond mere security applications, and this of course leads us back to the knowledge gap discussion previously mentioned. In reality I believe that this is too simplistic a representation of what goes on. Evidence would suggest that the different stakeholders do know the value; they are just hesitant to take the leap into a market that is not tried and tested. (Think back to Fredrik Nilsson's, Axis, referral to how much money a casino stands to lose if a system goes down for any reason.)

It would seem that there has not yet been a case or an implemented project that could help companies comprehend what could be done to their overall budget with a fully functioning integrated system where one department could service and run all hardware and software. There are indications, albeit

not in written form, that this alone would reduce running costs with up to 10%.

Regardless of "firm" numbers or quotable texts, the examples above suggest that there is a potential knowledge gap that could be used by the "informed" companies who are active within the industry. It should be pointed out that education is needed in the IT vertical as well as the security vertical, albeit for different reasons. When the two verticals are trained, it will be easier for them to give informed suggestions to end-users.

The bottom line is that convergence is happening, however not as fast as some would like, or as fast as has been projected. That said, it is moving at different speeds in different silos. Convergence as such is not a bad thing, even though many in the industry seem to regard the term with skepticism, but this is mostly due to a lack of understanding of what real convergence will bring. By having a market that actually works under some form of standards, even if they are not totally unified, means that resources are being used in a more efficient way. According to the Resource Based View (RBV), companies need to transform short-term competitive advantage to a sustainable long-term advantage. Applying the bundle of different resources that are at the companies disposal in a specific way achieves this goal. This requires resources that are heterogeneous in nature and neither perfectly imitable nor easily substitutable. Translated to English this means that you need parts that are interchangeable (heterogeneous) but expensive (money, time or knowledge wise) to change. This would imply that lock-in for the industry is not to have proprietary systems where you cannot interchange parts, but rather where there is a significant cost associated with change. This cost can be illustrated in monetary terms for changing the actual product, but also in time spent training on new systems, down-time when installing, and so forth. Here integrators could take a larger stand and sell a service that delivers a specific value to the end-user. The end-user would not need to think about hardware or software since they are buying a result and not a box of goods. If these conditions hold, the firm's bundle of resources can help sustain above average returns according to RBV.

Where does this leave us with the physical security industry? We have a situation without common standards to adhere to, and a continuation of status quo with proprietary systems and ideas. Even though we see some changes taking place there is a risk that incumbent IT giants such as IBM,

Sun, 3Com, Cisco and others will steal the show and become the next generation's total security players. They possess knowledge of how to set up and work with open standards since they have been through the same process before, albeit within their own domain of IT. This is why the work of SIA, OSE and the ONVIF initiative are so important. Without them, the security players you see today will most likely not be here 10 years from now in any way shape or form.

Empirical Findings

As pointed out in chapter three, typically a complex situation calls for case studies to be carried out. Nonetheless, before I could decide on how to conduct case studies or what companies to include in the cases, I had to gain a better understanding of the industry at large as well as how the industry worked with alliances and ICT. During the joint information gathering of the project, the research group did both extensive desk research and some initial interviews to cover the entire industry. The goal of these initial interviews, where a wide dispersion of security individuals were contacted, was to help create a holistic view of the security realm that all three researchers could then build their individual research from.

This chapter will show and discuss the empirical material collected and how it helps me understand and define the market space in which the research question is tested. I will also outline the market's view on alliances based on survey work and interviews. The chapter finishes off with four case studies that help validate the theoretical framework.

Initiating the empirical work

The first step in gathering information was through desk research, which could be likened to a grounded approach, where more than 600 security-related companies' (traditional security and IP) websites were scanned for market penetration, turnover, security niche and potential. Even though this was done during a relative short period (3 months in the summer and fall of 2006) and with a very wide scope, the results from the survey were decisive in focusing later empirical efforts. It clearly highlighted the readiness to bet on strategic alliances to stay competitive in the changing industry. In essence this pre-study validated:

A. the possibility to use the chosen industry as a research objective

B. an interest in alliances and partnerships from both IT and Security, and finally

C. the importance of continuous observation of the two industries to gauge on-going changes.

In the early fall of 2006, the Lusax team went to one of the premier security conferences for security professionals (ASIS)[28]. The conference marked the starting point for the interviews and it functioned as an initiator to establishing lasting contacts within the community. During the conference a number of informal and formal contacts were made that resulted in interviews on site as well as phone interviews at later dates. During the conference the need for a tool to measure, or at least gauge, how IP saturates the security industry became evident to us. The security IP index[29] was consequently developed at this time. The index measures the rate of security convergence as described by Kalling (2009), and it is thus an indicator of convergence. The IP index needs to be monitored in order to understand the rate at which IP is permeating the security realm. There have been other findings over the course of the research work clearly indicating that convergence is taking place (Pierce, 2007, Weaver, 2007, Weaver, 2008) and at an accelerated pace. The convergence as such will be discussed in the following parts of the empirical work as part of the overall alliance discussions.

Findings from initial research

The initial research (grounded approach with desk-research and interviewing partner companies) indicated that the security industry is not ready to embrace IP or the notion of IP taking over the business. There is a general fear of what could happen mixed with a notion that since it was "not invented here", the IT industries knowledge and understanding of the physical security industry is low and hence their products inferior.

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[28] http://www.asisonline.org/

[29] The security IP index™ is an expression formed from the Lusax research that shows how traditional security players are becoming more adept at using and integrating IP in their business.

> IP has been a little niche market for the last 5 years where picture quality has been poor… somewhere into the future your network will probably be able to carry the bandwidth needed …, at one point in the future the digital cameras will be better than the analogue but at that point in time we will be ready. (Gerit Hurrencamp, Pelco)

The quote above is from one of the early, old-school security companies, and it expresses an opinion no longer widely held. As a counterweight to that, we can regard thoughts from one of the big IT players:

> The IT guys got Hubris and thought that physical security was super easy and said "We should just do it all" But they just didn't understand that they need each other in order to end up with a proper product. There is a real cultural change needed. … The Utility industry is redoing their thinking as have the cable industry done. Video streaming from telephone companies, cable companies as well as the power companies. Only the security companies are lagging. (Rick Geiger, Cisco Systems)

Cultural differences

Even though quotations are used to illustrate the point here, the desk-research also showed a lack of ICT thinking in the physical security players' webpages, quarterly reports as well as their general press releases. On the IT players' websites there was either a big splash about entering into a market with great margins and low entry barriers (referring to the industry's lack of knowledge around ICT) or no mentioning at all about the security industry. Examining quarterly reports for IT companies, more often than not, security was not mentioned. For many of the larger players that market was not significant enough to warrant notice. All in all I would argue that the cultural differences between the two industries is great, creating a non-conducive environment for trans-industrial alliance building.

> The convergence theme was seriously overplayed and seriously overestimated – how quickly things can change. In the IT industry you have technology change over 2-3 years but in the security industry the install base makes the cycle 7-10 years. (Glen Greer, Assa Abloy)

In essence the security industry saw IP as something of a fad or, at worst, something that would take 10-15 years to mature into the business and to get

the necessary traction to evoke interest from the traditional players. Knowledge of how IT typically changes an industry, as described by for instance Mazur (2008) or Rhaume and Bhabra (2008), was not present or at least not acted upon. This can in part be explained by the fact that the physical security market is largely built on longstanding relations with strong cultural bonds resting upon trust and personal relations. In this environment, information can flow quite freely, but there is also a potential lack of pressure for change. It is worth mentioning at this point that this "apparent lack of pressure for change" is something of an antithesis compared to how you would view ICT. Porter (1985), among others, has argued that the rapid changes seen within the IS field have a profound impact on both competition and on how competitive advantage is gained and held due to the pervasive role of information in the value chain. Taking this notion further Glazer (2000) approaches the field from an information perspective:

> Increases in the speed and amount of processing are functions of technology, but the emergence of new ways of "packaging" or organizing information suggests the importance of considering information itself, above and beyond the technology. (Glazer, 1991:3)

During the desk research there was no apparent intent from either segment to want to learn from the other. During later interviews I could also notice an absence of intent in the beginning of the research that would ever so slowly change over time. As an example in the interviews, when it came to wanting to handle the "transition to IP", most of the security players were very content with double-digit growth numbers, high margins and a history of slow incremental changes to any technological change.

> 3 out of my very top people have been with the company for more than 20 years, and the same can be said for many of my competitors. (David Young, G4Tec)

A situation with high cultural similarities coupled with a high level of trust would imply that long-term thinking, where invested training and development both internally and between companies has a good chance of yielding positive results, should be a top priority. This was, nevertheless, not apparent during the work. Rather there was evidence of almost the opposite.

Overall there was little evidence of joint development of products. Some alliance projects that have aimed to rectify this will be discussed later on in this chapter.

> We try to pick partners that make us look good; since the training and development is most often poor they have to have a good track record of being serious as well as a proven ability to finish projects. (Director of partner development, larger multinational)

Alliance thinking

Alliances as phenomena were seen as a way to ensure quality and control in the cases where in-house production was not a valid option. During discussions around alliance learning perspectives, it was quite clear that respondents thought of alliances in a very sales oriented way:

> It is hard to have an alliance without offering something they want and that is not a commodity. This means that personal issues have to drive the alliances. (Director, international physical security company)

Of the alliances in place many had been initiated based on trust and through personal contacts. This enabled companies to exchange information on a non-contractual base in some cases, and on very loosely agreed upon contracts in other cases.

> Successful alliances are always based on trust since you cannot use contracts to do more than to manage year-to-year changes. (Rick Geiger, Cisco Systems)

Looking to IP players that were embarking into the security realm, I could sense a certain frustration with the lack of progress in penetrating a new market segment, where the notion was that IT has penetrated every other market, hence it must happen here as well, eventually. The normal modus operandi for IT penetration has been to be either customer driven or M&A driven from the IT companies.

> The founders of this company saw different technologies coming together, but that there were no rules and regulations within the security industry as compared to the building industry. Out of the 15 000 integrators in the US most are just mom and pop operations. We had an idea that the complete relationship with customer needs to be a service stream in order to help the decision makers on the opposite end. (Dan Moceri, CEO Convergint Technologies.)

During the study, a few acquisitions have taken place, but without a clearly present alliance-strategy. Talking to both physical security players and IT players, a clear intent with the overall market appeared to be lacking. It did not mean that their companies did not have sales targets but rather that an overall integration strategy was missing.

This can in part be explained by the security industry being extremely fragmented and conservative (see e.g. 4.1), which makes both acquisitions and mergers between divergent cultures hard and not apparently profitable.

> The biggest challenge now is getting security to work with IT and vice versa. Today's security is not breaking new grounds and we need to a) educate internally, b) educate partners, c) educate customers. When this is done we might have a situation where we can do meaningful benchmarking within the security industry as seen in the IT industry. (Dan Dunkel, New Era Associates)

From the IT side it was hard to see the value of multiple acquisitions. Such acquisitions were not perceived to have the potential to offer sufficient market penetration since no player has a large percentile of the market.

> Typically we are number 1 or number 2 in any market we tend to operate in. If we are not in the top tier we are generally not interested in being in that market. (Mark Colar, Cisco)

It is interesting to note how few of the interviewed companies had a functioning alliance strategy in place, let alone dedicated functions to handle a potential alliance. This could maybe also explain the apparent lack of M&As since a potentially good alliance situation often also represents a good M&A situation. Even though the IT side had less alliances than expected, and less M&As have taken place than initially anticipated, the alliances that are in place are, just as with the security companies, sales oriented.

The synergies of sales, and sales channels, is what controls alliances for Milestone. (Henrik Friborg, Milestone)

We have very few alliances. In essence we only call it alliance if it involves joint product development, in other cases it is a sales partnership. (Per Johansson, Bosch)

It was also interesting to note that few companies had what you could call an alliance infrastructure backed by dedicated functions to support the structure. What I could see was that alliances as such were regarded as something very important for companies, but they were unsure of how to label their partnerships, i.e. as an alliance, partnership, joint-venture, etc.

I almost want to say that neither M&A, nor Alliances are relevant. The customer just wants products and that is relevant. Before you couldn't choose parts, but today you can actually buy pieces and put them together at least theoretically. (Kevin Wine, Lenel)

The last quote is interesting since Lenel has a functioning alliance program with dedicated resources, and yet they seem to claim that it is of little importance compared to delivering products to the market. On the one hand we have plenty of theory advocating alliances as relevant in order to get convergence to happen, but on the other hand we have Lenel that apparently uses alliances more as a way to get products to market rather than as a platform for learning.

Reflection from initial research

There are great cultural differences between the physical security industry and the IT industry, which at least at the outset seemed to indicate a non-conducive environment for transindustrial alliance building. From the security side, there is a clear pattern of longstanding relations with strong cultural bonds built upon trust and often also on personal relations. The industry as such has no sustained commitment (an absence of intent) when it comes to handling any potential transition to IP. It can be related to the fact that there is a strong tie between professional culture, organizational culture and industrial culture, where change has to come from within or from a strong outside force. High cultural similarities within the security industry coupled

with a high level of trust should indicate long-term thinking with for instance training and development. However, instead we see something acing to the opposite, where little training and development takes place outside of making sure that products are maintained and installed properly.

Alliances as such are seen more as a way to ensure quality and control of products in the cases where in-house production is not good enough, rather than an active way of acquiring ICT skills. The alliances that are in evidence are based on trust and personal relations with no, or very loosely defined, contracts in place. There is less focus on "practical matters" such as juridical aspects as well as possible steering and communication of the alliance.

It would seem as both parties are lacking in intent and motivation, in so much as they are missing an overall integration strategy, i.e. a plan for transferring knowledge. This could imply a barren organizational context, which in turn would make for a low transfer capacity. For the IT industry, this is probably due to the fact that it is hard to see the value of acquisitions since the security market is so fragmented. On the other hand, very few of the interviewed persons and companies had a functioning alliance strategy in place, or an alliance infrastructure for that matter, both of which could have alleviated the need for M&As or traditional organic growth.

Outside of the initial framework we noticed that the choice of purpose of training is important for a successful transfer of knowledge. On top of this, many of the interviewees discussed the importance of intent for all parts of alliance building both with Transfer Capacity as well as having intent of getting potential cultural differences to work. I would argue that intent is covered by the attitude factor under Relationship governance.

Trying to put this knowledge into my framework, we can see support for some of the factors in the original model, which are highlighted in bold text in table 8 below.

Table 8
Matrix of the factors identified in the initial desk research as important in ICT capability transfer

Transfer Capacity	Relationship Governance	Cultural fit	Outside of Framework
Characteristics of knowledge transfer - ~~_Causal ambiguity_~~ - ~~_Unproveness_~~ - ~~_ICT_~~ _Characteristics of the source of knowledge_ - _Motivation_ - ~~_Reliable_~~ _Characteristics of the recipient of knowledge_ - _Motivation_ - ~~_Absorptive capacity_~~ - ~~_Retentive capacity_~~ _Characteristics of the context_ - _Barren organizational context_ - ~~_Arduous relationships_~~ - _Intent_	- _Juridical/Agency_ - _Strategic fit/Steering_ - ~~_Communication, ICT augmenting_~~ - ~~_Attitude/Intent_~~ - _Trust as a product of the others_	- _Professional culture_ - _Organizational culture_ - _Industrial culture_	- Purpose of learning

Understanding the market

After having done the initial research, the second part of the empirical work was to identify suitable cases to study. The initial desk research generated a shortlist of 100 potentially interesting companies. The Lusax team and the partner companies vetted the selection of companies in order to see if:

a. they agreed that the companies selected were interesting

b. they had possible contacts within each organization

62 individuals were interviewed in order to get a deeper overall knowledge of the industry and how the different players viewed and worked with alliances. The spread between Security, IP and position within company can be seen in

Table 9. 37 different firms are represented in the empirical material (for a full list of interviewees, times and firms, see appendix 1). The goal with these interviews was to try to map out a potential alliance learning process and how such a process is structured and to examine if the potential structure differed between the physical security industry and the IT industry.

Two sets of questionnaires were used: one short (see appendix 2) that ensured compliance from all interviewees and one more extensive (see appendix 3) for when time and locations permitted an even more in-depth interview. In reality most interviews started and finished with the short questionnaire, but there was almost always room for some of the detailed questions from the more extensive battery of questions. The important thing for me was to get respondents to talk, think and reflect around their potential alliance strategy and to potentially identify some of the theorized factors for alliance success.

Table 9

Distribution of initial interviews.

Security companies ("pure" security)	C-Level management	10
	Alliance management	6
	Other	11
IT/IP companies (Within the security industry)	C-Level management	7
	Alliance management	5
	Other	9
Consultancy (Working with the security industry)	C-Level management	9
	Alliance management	0
	Other	2
Print/Media (Trade press within the security industry)	C-Level management	3
	Alliance management	0
	Other	0
C-Level: 29	Alliance mgm.: 11	Other: 22
Total		62

The initial interviews also started a first round of interviews for the subsequent cases that were to emerge from the vetting process (the cases will be discussed in further detail at the end of this chapter).

The work gave preliminary insights in what rational and reasoning players had behind alliance building as well as the different types of alliances that are represented within the industry and what potential results they are expected to generate.

The first thing that is of note refers to the initial discussion around the inertia that the IT companies voiced concern about. I have come to realize that during the Lusax study, a lot has changed within the industry: from the fall of 2006, where the incumbent security players declared that IP connectivity was not coming anytime soon, until the fall of 2010, where no camera-producer, installer or integrator was without IP technology. A quote from the earlier time is:

> First of all we are not in the acquisition mode, if we set out to do something we do it ourselves, … We do not need as many partners since we offer everything in the value chain, … By the time we need IP knowledge we will have it. (Joseph Olmstead, Pelco)

Less than one year after this, Pelco was acquired by Schneider Electric, and less than one year after that, it was announced that Cisco and Pelco would develop a world class IP camera together. In the same time span, Cisco had started and ended an alliance development with AssaAbloy (on the same topic) since they did not believe in the market value of the product.

The interesting part is that the security industry has been very stable for a long time with steady and consistent growth numbers. In 2006 nothing concrete indicated that this would change, except for historical data about IT's effect on businesses where it has been injected. As it turns out, the security industry was not immune and the influx of IT created a volatile environment that was, and is, hard to predict. This situation could possibly be reason enough for organizations to look to different ways of lowering their overall risk of doing business.

> Product manufacturers make all the money, we take all the risk. The new thing is IT, Physical and Logical systems coming together. This means that we treat every job as we are going to court with it, i.e. everything is documented and recorded. (CEO of IT security company)

> The industry has had a hard time accepting the fact that there is convergence and that it is happening. A lot of the people involved within the traditional security do not want to learn the new "stuff" They don't want to have to deal with the network guys. (Dennis Charlebois, VP Marketing BroadWare)

Having alliances in different forms is one way of lowering risk, and thus it was natural to ask respondents for their reasoning behind forming alliances.

Reasons for alliance building:
Looking to the interviews, the four most voiced reasons for alliance building within the security/IP community for alliance formation were:

1. Resource utilization. Economies of scale and combinations of resources are sought that enable the same amount of products being produced with fewer resources, or that the same amount of resources being produced with greater output.

   This segment was very sales and production oriented. The alliance would either help the organization to sell more or to get better revenue out of each sold unit. The segment focuses around infrastructural thoughts in and around alliances as well as how technological knowhow can achieve better results.

2. Coordination. Companies may seek inter-firm collaboration to increase coordination and control of previously uncontrolled parts of the production or supply chain.

   The general idea from the interviews was more towards informational coordination, where shared information should help create better end-user value.

3. Positioning Alliances are used as a way of positioning the company for possible future developments, e.g. cooperation with technological leaders on upcoming markets or as a way to position the company for M&A.

Alliances are a steering tool, where the alliance as such is a strategic venture more than it is a value creating prospect in its own right.

4. Knowledge. Alliance building is used to better co-ordinate different activities and to facilitate learning and knowledge sharing.

   This answer came from the more alliance savvy organizations that saw, or at least thought they saw, the alliance as a part of their culture.

Even though these four identified "key factors" for alliance building are very widely defined, they did give an indication of how the two industries valued alliances as a tool for their business. Again there was an apparent lack of alliance learning intent and rather a sales and marketing intent and risk mitigation.

Different types of alliances:
There are a multitude of different organizational collaborations in existence within both the security and IT community. However in the interviews conducted, no clear-cut definition of what an alliance is, or should be, could be identified. The one thing that was immediately apparent was the big gap in value and meaning attached to the word of Alliance. During the interviews a couple of interviewees stated that they do not even have any alliances, only partnerships or customers of different importance. After discussions it was nevertheless apparent that their partners or important customers were similar to what another interviewee would call an alliance.

> As people go out and look how other companies define convergence and see them doing a good job it will lead to alliances. The definitions of convergence are similar to alliance building. (Open Security Exchange)

> Bosch doesn't use the word alliance, which makes it somewhat peculiar to talk about it all the time. We view the customer as # 1 and all deeper cooperation's such as Niscayha will migrate the customer to a partner. (Per Johansson, Bosch)

Often the firms interviewed had many different types of alliances that together formed an alliance eco-system. Again there is no clear example of what an alliance eco-system is or should be, or if there is a difference compared to a network or partner program. All interviewees agree that partner programs or alliance programs are vital for the continued development of their company.

Some go as far as saying that long-term partners are required in order for their company to be involved both vertically and horizontally now and in the future.

It soon became apparent that it would not be beneficial in this context to try to define the different types of collaborations that are in existence, but rather to understand what factors can be identified that are believed to influence the alliance regardless of type. One good definition of alliances did come forth though:

> An alliance is a commitment from two or more business partners to work in a structured way to reach common business goals. An alliance can be established for a project or for a general market approach. (Trygve Kolstad, Niscayah)

Using this as an example of what I meant with an alliance, the two questioners tried to pinpoint any tangible differences between an alliance and a partnership. The pooled result is that an alliance most often is perceived as more of cooperation, where the partners are on equal footing. One interesting insight from the interviews is that maybe the partnership approach builds the alliance, and that a strict partnership can evolve over time into an alliance, formal or informal.

Expected results of alliances:
Different results are apparent, expected or should be expected depending on the different types of collaborations the companies engage in. For larger companies, a partnership with a smaller company can offer a means of tapping into innovative and entrepreneurial potential. For the smaller company, the ability to reach the world market faster can be on the table. The fact that IP is penetrating the market domain has caused incumbent security companies to see growing capital investment costs and higher risks with developing proprietary systems. It creates a need to find alternative ways of lowering the risk and factual outlay in developing new non-proprietary systems or at least semi open systems.

> Our show is a great blend of physical and logical security where we facilitate alliance building between leaders who understand that our siloed culture needs to change. (Sandy Jones, SNG)

The overall consensus was that the often sought after results of alliances are mutual product development, synergies for sales, new sales channels, help

with training and developing of the workforce, knowledge sharing and the possibility to access new networks. The risk with having joint sales channels, or borrowing form each other's customer base, is that it is hard to know who owns the customer:

> The convergence of technology has changed the business. The IT "kid" is now the boss over the old security guard, but the IT person still needs help with understanding what security is or should be. It's not only a bunch of IT toys that should be installed. (Russel A. Bandy, GE)

During the course of conducting the interviews, the climate in which the companies operate has changed. The alliances that have been struck between IT and security companies have resulted in security firms both intentionally and unintentionally thinking about IP solutions and services.

> A high tide raises all the ships, and open standards (such as seen in the IT industry) are enablers for our industry. The frustration we feel is what drives alliances. (Security consultant at SNG show)

Main findings from overall interviews:
There is a general consensus that alliances are necessary in order for convergence to take place at any measurable pace. The M&A boom that was foretold in 2006 by the IT companies has largely not materialized. This is probably due to a number of factors, but most prominent among them according to interviewees is a lack of understanding of how the physical security industry works and is congregated from the IT industry. It results in fewer mergers that require more resources than normal to be successful. Another factor is the security industry's very fragmented nature and that there is no easy way of gaining market superiority by M&A. It results in a situation where it might take just as long to grow organically as by M&A.

> All systems will be IP based, we need to know the technology and we need to have good networks. Educating the users and understanding the network is important; convergence then is about education and knowledge, and having the consumer market driving that change. (Shelby Beard, CSC)

The consumer market will eventually create a situation that will force convergence to IP to happen faster than it has so far. It creates a need for M&A, which hitherto has not been necessary since organic growth has been

more than enough for most security organizations. Alliances are a middle ground between organic growth and the M&A scenario that can offer more flexibility.

> Today you need to cooperate with companies that have related products that complement your product offering with an increased value. This is why Bosch works with "cross cultural" teams, which gives a better helicopter view of what is coming. (Per Johansson, Bosch)

The reasons to form alliances are numerous, but the four main ones that the interviews identified are *Resource utilization, Coordination, Positioning* and *Knowledge sharing*. What was interesting with the alliances formed was that there was a general idea that the specific type of alliance was of little importance compared to expected results from the alliance. Most respondents seem to favor an alliance eco-system approach since alliances tended to change over time. As has been argued previously, the actual definition of what represents an alliance is a moving target. This means that we have a situation where the factors that influence the alliances are the key ingredient for success.

The key factors that were identified as being influential in alliance building between IT and security were:

a) a difference in culture as well as intent in running a security company and IT company

b) a difference in willingness to adapt and accept the change resulting from internal and external knowledge transfer

c) a difference in alliance stakeholder management between the two industries.

At this stage of my empirical data gathering, it became apparent to me that something was missing from the interviews. If everyone was convinced of the positive impacts of alliances and there was an overall consensus on factors that influence alliances, why have we not seen more of them, and why do so many alliances fail? In this instance I wanted to get some numerical values on the qualitative work that had been done so far, i.e. the interviews and desk research. The industry being so fragmented could indicate that it is better explained through a quantitative study, and the Lusax team had already done one large such study, but examining alliances and the people that are responsible for them turned out to be harder.

Survey

As mentioned earlier the Lusax team had already done one larger survey at this point, and even though I wanted to get some numerical values to compare with my interviews, I also knew how hard it is to get respondents to take any survey. I decided to revisit all the individuals interviewed so far and have them answer a questionnaire, which to me was a good middle way. The idea was to try to put numbers rather than words to the findings from my initial interviews, and what better way to do this than to ask the same individuals to answer more questions on the same topic, but in a different way. A smaller questionnaire (see appendix 4) was created in order to collect data that I could analyze to understand how the two industries viewed alliances and alliance work. The initial interviews all showed a very strong belief that soft factors such as culture and relationships are key in successful alliances. However looking to how the case companies struggled with their alliances, it was apparent that something was missing in the understanding of alliances' success or failure.

The survey endeavored to map: 1) Views on, 2) Reasons for, 3) Results of and 4) Driving-forces (i.e. critical factors) behind alliances. There were 78 recipients that were dispersed in a broad range of security and IT companies. All recipients had already partaken in the initial interviews, the initial round of case interviews or both. There were 39 respondents, which gave an even 50% response rate. In many instances a response rate of 5-10% is considered good and thus a response rate of 50% great. On the other hand, getting at least some answers from non-respondents to verify that there are no systematic differences between the non-respondents and the respondents is desirable. There were, however, no clear patterns for the omitted answers. Most respondents simply did not answer to the two e-mails sent out, and a few were not willing to share information, e.g.:

> … we believe that this survey goes beyond what we are willing to share so we would prefer not to participate… (Alliance leader of larger IT Multinational)

Regardless of the quote above, I see no reason to believe that responses from the 50% who did not participate in the survey would have changed the outcome of the survey, i.e. having 100% response rate would not have altered the results of the survey.

The survey was constructed out of 52 specific questions (see Appendix 4) and these were grouped into smaller segments. It started with general alliance attitude questions that were targeted to get a grasp of the respondents' knowledge and familiarity with the alliance concept. They were followed by groupings of questions that targeted Views on, Reasons for, Results of, and Driving forces behind alliances.

As could be expected, the answers indicated similar factors for success as the interviews had. *Leadership, Trust* and *Culture* were all recognized as important. There was a belief that alliance increase companies' speed to market, and that alliances need organizational resources to succeed. One of the more interesting aspects was that respondents claimed to have a clear grasp of how alliances are defined and with that claim some understanding of their working. Strangely enough, industry and company experience did not affect the view on alliances and collaboration. It seems that age and experience does not affect alliance success.

Most respondents claimed a high success rate of alliances, but hardly any of the respondents had defined measures for monitoring the alliances as such. The question harkens: how can you know if there is success if there are no measuring points?

Other observations
Overall the survey indicated a strong *awareness* of alliances and the perceived *importance of alliances increased hierarchically* within organizations. Almost all believed that *alliances would increase strongly* over the next 5-year period. The reasons behind this line of thought were market driven rather than production driven.

Summary of Survey
The survey supported a number of the findings from the qualitative interviews but, more surprisingly, also revealed some new findings, e.g. that organizations work with alliances in another way than they say. There were strong indications that real, or factual, driving forces are not the same as the intended or politically correct ones. Or to put it in another way, "people talk the talk, but do not walk the walk". The survey was an eye opener in the sense that it iterated the need for multiple sources of data as well as the need for a critical disposition when doing open-ended interviews. What the respondent thinks he or she is doing is not always the same as what is actually being done.

It is clear that respondents perceived personal relations and "softer" management issues as important for alliance success. Analyzing the numbers, it is also apparent that traditional, i.e. formal, management structures with Key Performance Indicators (KPI) and dedicated functions were also perceived as important for the success of the alliances.

> Hence Formalism *and* Personal relations are both important for alliance success

There were clear indications that middle management buy-in was important for alliance success, but everyday operations with involvement from all parts of management was equally important.

> Hence Operational *and* Middle management buy-in as well as daily involvement is necessary if you want to achieve your alliance goals and have successful alliances

Furthermore there is a clear market driven focus to alliances where the industry views technical support as an important factor for success.

Finally it was viewed as very important to have an attitude which support an Open, Learning Culture with Common expectations in order to achieve alliance success

These results are almost diametrically opposite from respondent views as expressed in the initial study and in the parts of the numerical study where respondents evaluate critical success factors. This would imply that the *real* critical success factors differ from *perceived* ones, at least in so forth that the *perceived* CSF are all soft issues, whereas the analysis shows that the *real* CSF are more related to hard issues of formalized routines and measurement.

Figure 6 is a summary of the survey. It illustrates that the *views* a respondent has will influence the *Reasons* given for alliance work as well as the *sought after results* of the alliances. The *perceived critical factors* for success were also strongly influenced by *views*.

The respondents believed that "soft" issues rather than "hard" ones are important to the success of alliances, and that the sought after results of the alliance is to *improve offering*, have better *resource utilization* and to improve *culture* and *coordination*.

The numbers after each heading indicates the mean values from the participants where the values ranged from 1 to 7.

Figure 6
Alliance survey summary

Implications:
This means that companies who wish to succeed with their alliances need to have both formalized routines around how they work with their alliances and how they work on personal relations in and around the actual individuals who are involved with the alliances. There needs to be both a top-down and a bottom-up approach to the work in order to ensure as close to omnipresent buy-in of the alliance as possible. A more interesting aspect that came to view is the importance of Tech-support. It appears to be an untapped fountain of possibilities. How can technology help in alliance work? This folds neatly into the factor of the open and learning organization where culture fosters at least some individuals to be inquisitive as well as curious. Although time-consuming in many ways, it also forces the organization to adapt and take position on a number of issues and ideas.

With the initial interviews and the survey done, the case study interviews could commence. I had already done an initial round of interviews with all involved companies, but with a better understanding of the alliance milieu as such, the subsequent interviews could be more effective and for the most part more efficient as well.

Reflections from main interviews and surveys

After having conducted the second round of interviews and the small quantitative survey, all of the factors identified in the initial part of the research were verified and a few new factors from the theoretical framework were also highlighted. One interesting aspect that stood out from the start was that all interviewees agreed that alliance programs of different sorts are vital for the continued development of their companies. Long-term alliance commitments are seen as a key ingredient for what they call "vertical and horizontal involvement", which I can only translate as a form of absorptive capacity for the future.

The work also identified differences in culture as well as intent diverge between the two industries and between companies. The latter was illustrated by the fact that there was a perceived difference in willingness to adapt to and accept changes resulting from knowledge transfer. One more interesting aspect of this difference in potential absorptive capacity was that it affected both an organization as such – then voiced as internal knowledge transfer – and the industry – then voiced as external knowledge. This was also supported in part by the fact that there was a voiced difference in alliance management between the two industries, which I would translate as a difference in both agency and juridical aspects.

The more interesting findings came from comparing the interviews with the survey, where the interviews showed a very strong belief that culture and relationship governance were the keys to having any success with alliances. The survey showed that this was true, but also that other aspects, such as organizational resources in the form of for instance monitoring and buy in, were important for success. These factors fall within the Transfer capacity part of the framework under motivation as well as casual ambiguity. Maybe a more surprising finding was that there would appear to be a clear market driven focus towards alliances. The industry as such views technical support as a

factor for alliance success, which would support ICT as an augmenting factor in relationship governance. Finally an open attitude was deemed important, which in turn could support a culture that would promote learning and common expectations.

Just as in section 5.1 I have highlighted the confirmed factors within the model, see Table 10.

Table 10
Matrix of the factors identified in the initial interviews and survey as relevant in ICT capability transfer

Transfer Capacity	Relationship Governance	Cultural fit	Outside of Framework
Characteristics of knowledge transfer - *Causal ambiguity* - *Unproveness* - *ICT* *Characteristics of the source of knowledge* - *Motivation* - *Reliable* *Characteristics of the recipient of knowledge* - *Motivation* - *Absorptive capacity* - *Retentive capacity* *Characteristics of the context* - *Barren organizational context* - *Arduous relationships* - *Intent*	- *Juridical/Agency* - *Strategic fit/Steering* - *Communication, ICT augmenting* - *Attitude/Intent* - *Trust as a product of the others*	- *Professional culture* - *Organizational culture* - *Industrial culture*	

Four cases of Security-IT alliance building

The initial interviews coupled with the survey worked as a very robust platform from which to launch the case studies. I had already met with all the companies that were going to be included in the case studies, and an initial trust had been established.

Case 1: Assa Abloy – Cisco Systems

Assa Abloy and Cisco announced an alliance formation in late 2006. The purpose of the alliance was "to bring network intelligence to the door".

> "The concept of employees using their badges or other credentials to gain entry into buildings while also establishing physical presence to access certain network resources will generate tremendous attention from many customers in a variety of vertical markets…" (Mark Farino, general manager of Cisco's Converged Secure Infrastructure Business Unit.)

In reality the interviews revealed that the alliance had more far-reaching implications than this. The overall aim of the alliance was to develop compatible technologies enabling the convergence of the physical and logical access. Assa Abloy's standards-based Highly Intelligent Operation (Hi-O(™)) lock-technology system were to be ensured interoperability with Cisco's approach to integrated IP solutions for physical security (that was built on Cisco's Intelligent Converged Environment (ICE)). This in turn would allow for the integration of video surveillance and physical security devices into IP-based networks.

> For us this is an exciting new way of looking at security. We believe that we have done something quite unique within our field when we jointly developed our new Hi-O system with Cisco. (Member of AssaAbloy board)

Hi-O is an open standard based system permitting electronic door components such as locks, door sensors, door actuators and smart card readers to work right out of the box, and it permits those components to communicate with each other over the company's IT network. It is interesting since it was the first instance where AssaAbloy as a company tried to create and implement a pure ICT product into its own market segment.

> Hi-O was weird since we decided to do everything ourselves. It was like doing ONVIF by ourselves and then hoping to get others to join after we were done. That hasn't really worked. (Glen Greer, Assa Abloy)

The ability to have a network connected door/access point lowers the total cost of ownership by simplifying installation, making maintenance easier and predicting breakdowns.

One aspect of this development that Assa Abloy had not really calculated with was the amount of effort they would have to extend internally to market and sell the product within the own organization.

> It sometimes feels as our biggest opponent is our own organization. We have been met with the biggest skepticism for the system internally. (Eric Michélsen, Assa Abloy)

Studying the case from the preliminary framework, the alliance was initiated based on pure trust, where the two key persons within Cisco and Assa Abloy were personal friends. The fact was that both partners needed the knowledge and skills that the other partner possessed within its field, but there would never have been an alliance without the personal connection.

> I don't think we would have had an alliance at all without Glen and Rick's personal contacts since before. (Eric Michélsen, AssaAbloy)

In the case of Cisco, their knowledge demands were that they needed to understand how the security industry functioned and how to market and sell towards that industry. At the time of the alliance inception, Cisco had just started its "security" venture and done their first acquisitions. They wanted to put in place a system that could play on the convergence momentum that was seen in the market. They realized that they needed to have access to both control expertise and knowledge and understanding of how the market at large functioned.

> The decision to go into physical security had been made by the systems group at Cisco, but based on my experience from GE and Interlogic I knew that we needed help to reach the market. Cisco as a company lacked corporate experience in physical security and we needed security sales channels on a global scale. AssaAbloy was the best company to align with to reach this goal. (Rick Geiger, Cisco)

Cisco in the form of Rick Geiger (Director of Engineering at Cisco Systems) contacted Assa Abloy in the form of Glen Greer (Rick had formerly worked for Glen) to see if there were any good candidates for them to align with as well as to see what Assa Abloy had in the pipeline. At this point in time, Glen and Assa Abloy had been thinking on different ways of connecting the doors to an IP network, and the call from Rick meant that ideas that had been

gestating could be brought to fruition. As it would turn out, Cisco wanted more than just a sales partner within the physical security realm, they also wanted the organizational resource that Assa Abloy possessed in terms of customer base and sales channels.

> The fact is that we wanted a quick way into the market, and needed a good brand name to help us do this. (Robert Beliles, Cisco)

> Cisco needed access to control expertise. Fortunate opportunities and personal relations was what got us started. (Glen Greer, AssaAbloy)

In Assa Abloy's case they thought that they required the IT knowhow that Cisco possessed to produce IP enabled doors that were easy to configure and support on a network. The idea behind the IP enabled door was that service and maintenance would be monitored remotely on an as needed basis, which should decrease downtime and lower cost. The doors' installation and configuration would also be both faster and easier to do than the installation of today's door systems. Assa Abloy had an idea that, since Cisco was one of the first companies to be able to offer commercially viable routers that could support multiple network protocols, they could also help Assa Abloy introduce network enabled hardware such as doors and locks to an IP network.

> In our case it was quite clear that you cannot be a prophet in your own organization. By having an alliance with Cisco we had an easier time of selling the idea of a network enabled door internally. (Eric Michélsen, Assa Abloy)

> In Ciscos case the chief executives of the group were bypassed in some way. As I understand it, it was all very loosely put together. (Cisco employee, at security conference)

Cisco also thought that aligning with AssaAbloy would increase their speed to market and, more importantly, allow them greater market penetration than would otherwise be possible in the same timeframe. Market penetration and position within the market was part of the overall strategy and Cisco's reasons for entering the alliance.

> We intend to grow to the number 1 spot in the security market space at some point in the future. We are either in the #1 or #2 spot or we are not interested in that market. (Mark Kolar, Cisco)

The start of the alliance

What happened was that, after the chief executive of the Cisco group charged to penetrate the security business gave a "go ahead", a small informal group of technicians from both companies was formed. This loose alliance had one primary goal, and it was to produce a functioning demonstration platform in time for the 2006 ASIS show in San Diego. The project was formed on a very informal basis, and according to Glen Greer, they paid a price for this later on in the work when the alliance started falling apart. There were neither formal routines nor ideas of how to regulate and contain the problems the alliance encountered.

One identified way of having stable alliances is when there is a high degree of dependability between alliance partners, i.e. when they have little or no chance of surviving without the partner's help. The degree of dependability between the two partners in this alliance was very low as it turns out since both partners thought they could work well without the other. There were plenty of alternative camera and IP-network control producers for Assa Abloy to turn to. Cisco's view was, rightly or wrongly, that they could always just buy a typical security company or develop the needed security knowledge in-house. Cisco is typically among the market leaders in all segments they compete in, which made for a rather large confidence that sometimes got in the way of them being open to the physical security industry's specific problems.

> We can create new services that the market hasn't thought of just because we are running on IP. (Mark Kolar, Cisco)

The little dependence that was there was related to the team effort that the development of the system required. Some parts were sequential in order. Cisco could, for example, not build switch protocols for the door until Assa Abloy had released the Hi-O protocol for how the door and adjacent door products would communicate. The problem, if it can be called that, was that the people working with the development did not see these problems as a function of dependency discrepancies or as a difference in culture. Instead they saw the problems as pure technological barriers that needed to be solved in order to have a demonstration platform in place. You could go as far as saying that the people involved did not think of the alliance in those terms, rather they were technicians charged with a technical challenge under a strict deadline. The alliance as such was something for other parties, unclear which, to worry about.

Cultural issues

Another factor that can stabilize alliances are similarities in culture, but in this alliance there were cultural differences, both in professional culture, in how to approach the development of new products and in organizational culture, which created some friction in development. That being said, during the development of the prototype there were "tech-guys" on both sides working on the problems at hand with little to no friction. It would seem as if their professional culture was rather similar since the partnership during this time had less cultural problems and more pure technological problems that needed to be solved.

> Today Assa Abloy works with different development channels in order to produce better products, but development is not the same as innovation and traditionally we have been very bad at innovation. Per employee within the organization we have a very low % innovators and R&D spending. (Åsa Christiander, AssaAbloy)

Let us now look at culture in three dimensions: national, organizational and professional. The fact that the companies were of different nationalities seemed to be of less concern. Some general differences between Swedish and American culture were nevertheless evident. One such difference could be seen in how people talked about the project. Cisco was very confident in the fact that they could take over the security industry at any time, whereas AssaAbloy was very happy with a partner that could teach them about IP technology. There were definite issues of differences in organizational culture, from how they approached R&D, market penetration and just such a thing as rebranding after M&A. There were, however, also similarities on an engineering level, which was reflected e.g. in a discussion with Rick Geiger, Cisco. He stated that *"corporate cultures are very different, but on our level it was no difference".* Cisco rebrands all purchased companies into the Cisco brand, whereas AssaAbloy let the original company continue on as before. One such example was HiD which is a fully owned subsidiary to Assa Abloy that manufactures and sells access control systems, an integral part in the Hi-O door systems. Another issue that is quite interesting here is that AMT was a smaller partner in the alliance. They were responsible for supplying access control systems that would work with different door networks. This is a bit strange since the fully owned Assa Abloy company, HiD, offers similar products, but they were not invited to join the project.

There are at least two issues in this seemingly small thing, i.e. not inviting the fully owned company that needs mentioning. One is that Assa Abloy had very little experience with working with alliances and still has no dedicated resources for maintaining and building alliances. Assa Abloy rather depend on dedicated employees taking this as an additional part of their work assignments.

> I was the one responsible for driving the potential integration between Hi-O and our home control series. It was hard since Assa Abloy had no experience in working with alliances, and there is still very low commitment to this since we have no dedicated resources, but rather you have dedicated people who do the required work at this point. (Åsa Christiander, Assa Abloy)

This is something that might change over time as Assa Abloy starts consolidating its resources. According to Ulf Södergren, CTO of AssaAbloy, the company sees alliances and partnerships as something essential for the future development for AssaAbloy.

A second issue is the fact that the Assa Abloy team felt that they had to look outside of the own organization for an access control provider, even though HiD should have been the natural and best choice. The official reasoning was that HiD at the time only had single door access control. But a more plausible reason is that the professional culture of HiD and the Assa Abloy team was very different, which would have offered a number of challenges, especially under the tight timeframe the project was working under.

Cisco on their end are used to having alliances and partnerships in different shapes and guises and has some dedicated functions towards that end. At the same time many of their alliances are also a pre-course to acquisitions, which is something worth keeping in mind. That being said, the alliance with Assa Abloy does not seem to fall within this category. It appeared to be a way of trying to achieve market penetration as well as establishing themselves in a new market space in a short period of time.

> The safety and security of people, property and assets is a top-of-mind concern for businesses and government alike. (Mark Farino, general manager of Cisco's [30])

> I didn't see any cultural difference on the professional side from the people doing the daily work. The problems we had were on a managerial or C-level if you like. (Glen Greer, Assa Abloy)

It was hard to get respondents to comment and volunteer information on professional differences since differences could be interpreted as critique going both ways. However, there were clearly observable differences in how professionals from the physical security industry work and how professionals from the IT industry work. Even though there were differences within industrial and organizational culture, it was fascinating to see that there seemed to be more similarities than dissimilarities on the professional culture side.

> All it was in the beginning was a bunch of tech-guys who had a challenging deadline that needed to be met i.e. the tradeshow where the prototype was to be shown. (Glen Greer, Assa Abloy)

Maybe the biggest difference on the professional side was quality and control and how it was handled depending on which field you are from. Typical mode of operation within the security field is to check all products before they go out the door, whereas within IT you let subcontractors check and verify the products before they are shipped. Within IT you then do random vetting of your own product line to see that you are performing to standards and to lower cost of control.

> We check all (100%) products that go out the door, we believe that is cheaper than handling recalls. (David Young, G4Tec)

According to Dan Dunkel of New Era Associates another cultural difference is that within the IT industry the use of benchmarking is quite common, whereas in the security industry it is practically unheard of.

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[30] From Cisco's newsroom webpage.
   http://newsroom.cisco.com/dlls/2006/prod_092506c.html

The biggest challenge now is getting security to work with IT, since today physical security is not breaking new ground. (Dan Dunkel, New Era Associates)

The discussion around benchmarking is quite interesting. One possible reason for the low level of benchmarking within the industry is the lack of standards to benchmark towards, at least if you talk to industry experts such as Ray Bernard, Dan Dunkel and Severin Sorensen. Benchmarking in those conditions is like comparing the proverbial apple and orange.

To me it is unbelievable that we don't have more benchmarking within the industry. Look at the IT industry everything is benchmarked. (Severin Sorensen)

Aspiration with the alliance
The level of intent was also different between the two firms. Assa Abloy, in the form of Eric and Glen, had a plan to learn all about the network devices, albeit this plan was not an official alliance goal. The learning work was hampered in some ways since there were no specific resources allocated to the learning and knowledge allocation task. It would seem as if the small group of people within interconnectivity platforms had a pretty daunting task when they were to learn from Cisco at the same time as they had to produce a new product and a new system in a very short period of time.

We had a clear goal within our group to learn as much as we could and secure a product as fast as we could, but officially there were no resources for this. (Eric Michelsen, Assa Abloy)

Talking to Cisco on the matter, they did not adhere to any official or unofficial learning goal from the partnership. The fact was that for Cisco an important part was to get both a big "splash" when entering into the market together with Assa Abloy on the ASIS show and to get an additional channel to sell their IP-network products through. The Cisco team responsible for the alliance project had clear ideas of what the alliance could ultimately do for the industry, though. Some would go as far as saying that the potential for a game-changing move was there for the taking.

> We were in a position to set the agenda for the industry, but we didn't follow through on that potential, rather we changed our focus to other parts of the industry. (Rick Geiger, Cisco)

This indicates that we have two organizations that had both official and unofficial goals with their alliance, but they had no specific alliance resources allocated towards reaching their goals. Instead the technicians involved in developing the new product were also expected to accept responsibility for these unofficial goals that do not appear to have been voiced until the interviews around the alliance.

Having goals set up means that you have some plan for achieving the goals and a strategy to learn along the way, but overall the learning intent within the industry can be categorized as low.

> Today there is no comparison work done, but vendors as well as magazines need to work on enabling customers to find the right strategy. The list of what you can actually do with technology today is HUGE, but who or how we will use it to improve our everyday problems is not clear at all. (Ray Bernard, Go-RBCS)

Looking to this quote and other interviews done, I would go as far as saying that the transfer capacity is low in so much as the absorptive capacity for learning new things outside of the traditional security sector is low. This could be one reason to why AssaAbloy did not have specific resources allocated to learning from the Cisco alliance. The lack of resources also meant that there was less opportunity for individuals to develop personal agency through dialog and responsibility between partners.

On the other hand, there were no indications that the IT side, i.e. Cisco, had any intent or capacity to learn about physical security either.

> The IT guy still doesn't know enough to compete with the security integrator guy and the security integrator still doesn't know enough about networking but that's because they don't have to. The market is not moving that fast… Especially the security industry has a sense of not needing to hurry with learning. … The convergence theme was seriously overplayed and seriously overestimated how quickly things can change. In the IT industry you have technology change over 2-3 years but in the security industry the install base makes the cycle 7-10 years. (Glen Greer, Assa Abloy)

Ending the alliance

On all the tradeshows we have visited there has been talk on how organizations need to train and learn about IP, but in the end nothing earth shattering is done or has been done. Axis, which will be discussed as a separate case later, has its academy that trains resellers and some installers, but in the grand scope of things they are few. Looking to Cisco they were convinced that they had nothing to learn from the market. What they wanted was "speed" to market and a shortcut to router sales within the security realm. On top of this Cisco always had M&A as a secondary option if and when they thought that things were not moving fast enough or not in the right direction for them.

> We have started purchasing some security companies. But if we wanted to we could buy more. (Mark Kolar, Cisco)

During the first years of the alliance, there were dedicated persons on both sides responsible for actual development of a physical prototype, and progress was made albeit not as fast as the teams wanted. There was never a clear cut or agreed upon goal of what the alliance should ultimately produce. Since there were no measurable goals, it was hard to control and measure the alliance. Instead there was a pretty clear idea of what the potential benefits of network connected access points could be for the end-users and the alliance partners. The first year also saw clear top-management involvement from Assa Abloy's side, but there was less sell-in at Cisco, or rather, there was a change of focus from Cisco's management. The focus turned more towards network video rather than on access control. This was probably due to the acquisitions of video software companies such as SyPixx and Broadware, and in all likelihood this also explains why all head persons involved with the Hi-O project were fired or redistributed within Cisco during the following two years. No clear reason for this move was shared with Assa Abloy, and the alliance slowed down significantly.

In the end the alliance failed in so much as Cisco was no longer interested in pursuing it. When the failure occurred, Assa Abloy had assimilated much of the knowledge needed to continue the production of the Hi-O system doors on their own. This could in some ways be heralded a successful alliance since the only goal that was really put forward was to create a functioning network enabled door system in the market space. The alliance effectively functioned for three years during which time intelligent doors were designed and put into

production. Assa Abloy and Cisco jointly tested and marketed the technology behind the cooperation.

Looking to the work done, both parties seem satisfied with the end result.

> I think we got the most out of the alliance, since we have a functioning protocol and actual products on the market. (Eric Michelsen, Assa Abloy)

> I think Cisco got what they wanted from the alliance. They got a lot of splash at the ASIS 2006 show for very little time an effort relatively speaking. (Robert Beliles, Cisco)

Ironically enough one quote from an Assa Abloy board member from 2006 indicates an understanding of alliances that is not materialized down the line:

> Alliances work best when there is a mutual commitment to driving new business. (Board member, Assa Abloy)

The quote is interesting since there never was a mutual commitment within this project to driving business, at least not towards the joint project.

Reflecting over the factors discussed as being important between Assa Abloy and Cisco, we can see factors in all three factor verticals, i.e. Transfer Capacity, Relationship governance and Cultural Fit. More interesting, or maybe challenging, was to try to match the interview answers that were sometimes in colloquial language, to the theoretical factors of the preliminary framework. Of course the very nature of the setup of the interviews and cases asked for an informal setting with respondents discussing as freely as possible. In such a setting you get non-linear answers with openings for interpretation.

During the interviews it was evident that the unprovenness of the knowledge being transferred between the two companies was an important factor for both parties. At least initially there were thoughts of unreliability of the knowledge, i.e. can we trust the information from the sender to be correct, at least in how it pertains to our situation? But maybe more interesting is that as a recipient of knowledge, there were issues of absorptive capacity and retentive capacity. On Cisco's side, for example, it seemed to be connected to lack of intent or motivation to actually learn from AssaAbloy. In both companies there were no actual resources allocated to alliance building as such but rather to specific projects. Here we might categorize the situation as a barren organizational

context where the internal climate in both companies showcased some arduous relationship issues, e.g. the hard sell in of the alliance in the first place.

On the relationship governance side, it also became apparent that the deal had been struck based on the great agency that both Glen and Rick had in their respective organizations. This coupled with a great deal of trust between them made for a situation almost without legal documents. The lack of juridical documents and a formal structure to the relationship was also voiced as one factor that eventually caused the alliance to fail. Another possible factor was the big difference in attitude in the approach to the project, where one part was very happy to have a partner to learn and transfer knowledge from, and the other partner just wanted a quick sales channel. This could of course also be put down to a difference in culture between both the two organizations and the two industries. The more interesting aspect here was how both sides realized that on a professional level, the cultural differences were quite small resulting in fewer problems on a day to day operations side.

Outside of the preliminary framework, Intent was often mentioned as an important factor, where the two main underlying thoughts behind the intent factor were dedicated resources and having stated goals of the alliance. Looking to this it might be possible to put this intent factor under motivational factors for both the source and recipient of the transfer. There was also a discussion of measurability of the alliance connected to the intent factor. I would argue that Intent is showed by allocated resources, stated goals and by developing ways of measuring the possible achievement of stated goals.

The supported factors within the model, based on the first case, are highlighted below.

Table 11

Matrix of the factors identified in the first case as relevant in ICT capability transfer

Transfer Capacity	Relationship Governance	Cultural fit	Outside of Framework
Characteristics of knowledge transfer	- *Juridical/Agency* - *Strategic fit/Steering* - *Communication, ICT augmenting* - *Attitude/Intent* - *Trust as a product of the others*	- *Professional culture* - ~~*Organizational culture*~~ - ~~*Industrial culture*~~	- *Measurability* - *National culture* - *Goals and Sell through*
- ~~*Causal ambiguity*~~ - *Unproveness* - *ICT* *Characteristics of the source of knowledge*			
- ~~*Motivation*~~ - *Reliable* *Characteristics of the recipient of knowledge*			
- *Motivation* - *Absorptive capacity* - *Retentive capacity* *Characteristics of the context*			
- *Barren organizational context* - *Arduous relationships* - *Intent*			

Case 2: Niscayah – Axis

Axis and Niscayah are working partners on many different arenas in the world, where Axis typically delivers IP-cameras and knowhow around network enabled devices (mainly cameras).

> We can offer a very tight cooperation within all areas except shipping and credit (we are not a bank) but our distributors handle these aspects. But in all other areas we can help you: training, education, end-user deals, support on installation and the products them self. (Fredrik Nilsson, Axis)

Niscayah is the installer and integrator of a complete security solution. They come from the traditional security side with a lot of hardware installations, but they are now looking for a number of different sales propositions, among

them bigger market shares within remote monitoring and services that generate reoccurring revenue. Their four main areas of expertise reside in analyzing current and future security systems, implementing and managing said systems and helping with daily operations of security systems.

> You want to avoid selling "commodities" since they are always price sensitive, i.e. don't sell the box, sell the system or value of the system, by understanding the business the customer is in. (Martin C "Marty" Guay, Niscayah)

There was talk of an alliance between Axis and Niscayah already in 2006 on the American market. The reason for this was that Axis thought that Niscayah needed training and understanding of IP cameras both in order to install the new IP based products and to sell and recommend the products to the end customer. Top management at Niscayah agreed that there was a need to get increased IP knowledge within certain parts of the organization, and different working groups were initiated.

> We are going to build a Niscayah university where we train all our staff in IT as well as correct security measures. (Franco Van Heijningen, Niscayah)

The conception of this dream did, however, take some time and it was not until late 2008 that Niscayah was able to set up educational sessions at their new locations in Atlanta. You could of course argue that with the founding of the Lusax research team in 2006, they had in fact already started this process. It simply had not been voiced from either partner yet. In reality the full-fledged dream of an IT/IP security university is still not realized, but the dream lives on.

> We have not reached our goals at all. I feel we have to go back to basics and redefine job titles as well as job descriptions. To do this we need buy in from the field, which is a lengthy process. (Franco Van Heijningen, Niscayah)

Aspiration with the alliance
It is interesting to note that the US Niscayah team was very focused on setting up learning teams, whereas headquarters appeared to have a more reserved position in this matter. This meant that Niscayah as a company was still very much reliant on alliance partners to help them with IP installations as well as possible education. This makes it all the more interesting to look to the reasons to why the companies thought that an alliance formation was called

for in the first place. The reasoning was knowledge based but in reality dependent on two different aspects:

1. Knowledge base 1: Niscayah and Axis had a longstanding business partnership where Axis delivered hardware and specialty knowledge in larger projects that Niscayah have attained. In the European market much attention has been put on Niscayah's request to purchase directly from Axis, which is something the Axis business model does not allow. In some ways this has been a strain on the relation, but this has not been a factor in the US market space as much as in the European one.

2. Knowledge-base 2: The alliance was needed in the sense that Niscayah management as well as Axis believed there was a need for Niscayah to develop knowledge and skills in and around IP configured systems in order to both keep existing market shares and expand into the developing IP based product installations. In Niscayah's case this is an integral part of being able to offer installation and management of IP based security systems.

> I believe that we could really benefit from vetting our organization in order to train the people who are trainable within ICT. (Mark Weaver, Niscayah)

This is an interesting quote from Niscayah. They were not in any way unique with respect to wanting to learn more on ICT. However in 2006 when this was first voiced, they were early in their assessment of having a need and understanding that this would mean great changes internally. The timing could not have been better, since there was a well-established trust between Niscayah and Axis on the US market space. The real issue was if Niscayah had the cognitive[31] ability to internalize the potential learning and knowledge transfer that would reasonably follow with a learning center.

> I feel we don't see the IT companies. We actually miss opportunities since they never even hit the "radar", IT integrators sell some security as an additional peripheral device when they set up the IT system. (Franco Van Heijningen, Niscayah)

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[31] Cognition as has been discussed in the theoretical chapter here it refers to an organization, group or individuals ability to process information.

The reality is that Niscayah has been slow on the uptake of acting on this need, and as was quoted above, the training is still not in place, and it could be argued that the alliance is still not in place or, at the very least, that the alliance has not been successful in attaining the goals set up. It is interesting since the intent to have an alliance is clearly there, and at least some resources on both sides have been committed to the project. There are differences between the two organizations culture, but more importantly there seems to be a difference between the US Niscayah culture and the headquarters culture, at least on a national and organizational level.

The ICT challenge

At this point it is important to point out that there are a number of knowledgeable security professionals out there. The fact that the security hardware to date has not used IT or even been IT enabled has other reasons. The issue that has arisen, as often is the case when ICT systems are introduced, is that the systems are now becoming more complex and, more importantly, more and more interconnected. The more items that are connected over any form of network, the more intentional and unintentional business applications you can develop. This increased complexity and potential interoperability is what really drives the need for learning and knowledge sharing, where the end result should be some form of value creation for the end-user.

> I think one big problem that we are facing is that security players need to break new ground, and to understand what can be done. This is done by understanding trends, looking to capabilities and understanding whom to align with in order to a) educate internally, b) educate partners and c) educate customers. (Dan Dunkel, New Era Associates)

One of the challenges from the beginning was that Axis' take on the market was that eventually everything has to turn into IP based products. Looking at other markets, this transgression, once started, has gone quickly. In the physical security industry though, we have a greatly disparate and fragmented market, where the technology and economy has not allowed the convergence from analogue to IP to transgress at any great speed.

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There are a number of problems. One is that intelligent video still doesn't work well enough for the end-user to be willing to pay for it. Another problem has been that up until now bandwidth has been a problem for the IP cameras. (Fredrik Nilsson, Axis)

During my years in the industry we have seen many new technologies, but the only one that has actually been implemented quickly was the DVR and this because it had such a strong business case and just save so much time and money for everyone. (Glen Greer, AssaAbloy)

When the thesis project started in 2006, you could find some examples of IP based camera systems being profitable with 32 cameras or more, but in 2010 we see reports that you can get profitability (compared to analogue) with 16 cameras systems. Some claim that with cloud networking and the use of H.264 standards you can now show value from the first digital camera.

With the possibility of using cameras over the net, you can connect to our system and start using the camera(s) right away with no need for further hardware or installation with a very low monthly cost. Our typical customer will have 1-3 cameras at each location. (Brian Lohse, Secure-i)

The idea that IP cameras should (always) be better and more cost-efficient than analogue systems has been a point of annoyance for many traditional security players. One is Niscayah, who at times thought that the IP bandwagon was too obtrusive. One opinion that was voiced by Martin Gren at the yearly Securing New Ground conference is the following: "*Our job is to educate ignorance*". It is quite clear in the frustration of how the industry or maybe a specific alliance is not really moving at a desired pace. In essence it refers to how Axis has set up an academy while the physical security market has yet to conform to the IP bandwagon. Hence there exists ignorance both in understanding the benefits of IP cameras and in how to use and install said cameras. This and other comments like it have been a bit of a sore thumb for alliance partners that feel that they are maybe not up to "Axis standards" of what you need to understand in order to use and install IP cameras. That being said, it is still quite clear that sooner rather than later there will be a need for all security players to develop cognition in and around how ICT will enable the physical security systems. This is something that at least some of the traditional players have come to realize and understand, but they are still encased in a business that is renowned for its ability to resist change.

> I have tried to get our organization to understand the need for both training of our own staff as well as the need to acquire knowledgeable staff, either by acquisition or by hiring them outright. It is very frustrating that nothing is happening. If nothing else, it would be great if your research could point to how we are missing the train … (Anonymous person within one of the partner companies)

> We have found it hard to train the traditional security companies. There is a steep learning curve and it is a lot harder to install our software than coax cable or a cctv system. It seems as if knowing and understanding IP/IT is almost an afterthought for many systems integrators such as Niscayah. On the other hand great system integrators such as IBM do not know the first thing about Jpeg-4 formats and camera settings. In the end the systems integrator who does not want to learn and grow outside of his current comfort zone will be replaced. (Dennis Charlebois, BroadWare)

Looking to these two quotes, it would seem as if both sides need to learn something from the other, and this is something that has been shown in work by me and the Lusax team over the years, see Kalling (2007, 2009). In Axis' case it is quite simple. Their main business is in selling IP cameras, and they use alliances as an integrated part of their product offering. This is in large parts due to the fact that they only deliver part of a security solution or business solution, i.e. the IP cameras. Without alliance partners, they would only be a company offering a product and not a service or system solution. In essence the alliance is part of their organizational resource type.

> The end game is for the partnership to solve customer problems. If the alliance doesn't do this it has no value. (Marck McCourt, *BNP Media)*

Value creation from the alliance
For Axis, Niscayah represents a good way of approaching certain markets and thereby selling more products. (This is a somewhat similar thinking as Cisco had with their alliance with AssaAbloy) One such market is the banking industry where Niscayah has a very strong market-presence, but Axis has a weak(er) one. Another area where Niscayah is working up a stronger presence is in the healthcare industry, which could also benefit Axis in the long run.

> To us a clear market for our expertise is the healthcare industry. Estimates show that they could decrease inventory with as much as 25% if all equipment was accounted for. (Carol Enman, Niscayah)

Axis as an organization does not appear to aspire to learn more about the security industry at this point. They know cameras and applications around cameras which can be used for security related issues. The cameras can also be used for crossover aspects such as customer volume monitoring and events monitoring in general (e.g. migrating birds). That means that they are more interested in how their cameras can be used in different ways that increase customer value than in how the cameras can be specifically integrated in a security system.

In order to get any positive effects from the potential partnership with Axis, Niscayah would have to both understand and endorse the IP cameras Axis sell and be fluent in ICT talk. This is why Axis was very keen on setting up the alliance for education with Niscayah USA. Niscayah are not convinced that Axis is the right partner. This is reflected in an ongoing discussion about whether being a preferred partner to Niscayah should mean that Niscayah can purchase directly from Axis or not. Axis' business model does not allow this. Apart from the channel delivery problem, there is also a certain lack of conviction that the Axis cameras are the best way forward for Niscayah.

> I am not at all convinced that Axis cameras are what we need. Bosch and Pioneer have cameras that are equal and they are also larger product suppliers in total for us. If you look at the numbers we do not buy that much from Axis in comparison to for instance Bosch. (Niscayah employee)

Axis as a company believes strongly in partnerships, but they do not have a specific alliance manager or alliance team to oversee how the alliances are managed. Rather there are channel partner managers that are responsible for

the approximately 27 000 channel partners[32] and approximately 1000 ADPs[33] (Application Development Partner). In reality it is hard to call channel partners alliance partners since they are more like nodes in an ecosystem of sales partners that have different levels of discounts. The ADP partner program has fewer members and they are geared towards developing products around the Axis cameras, but they cannot be seen as full alliance partners anyway. They do not have access to change in the Axis hardware or even in the Axis software. They can only develop their products to fit into the existing Axis platform.

> We have a partnership model in place, but they are not uniformly successful around the globe. Certain markets are a lot more successful than others where the US market by far is our best one. I believe the difference in success can be traced to a number of different factors. 1) cultural differences between countries, 2) a tradition within the industry to do things in-house rather than to partner and 3) to have world class contacts with the customer which doesn't lend itself to the Axis distribution model. (Martin Gren, Axis)

For Niscayah there is a real need of the IP knowledge resource. As work by Kalling (2009, 2007a) has shown, it is not a question of whether the security companies need to learn about ICT, but rather when they can start and finish the process. There are of course numerous alternatives to how you acquire the IP resource, ranging from other alliances to Mergers and Acquisitions and possibly also through organic growth. The latter seemed more unfeasible in the beginning of the project, but as time has passed and the slow pace of change has become more apparent, it would still seem as a viable option to propagate the possibility of growing the business organically. This is especially true since the acquisitions that have been made have been into the traditional physical security and not towards IT based companies. Nischayah, for example, acquired PEI Systems. It was a good and profitable physical security

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[32] Axis Communications' Channel Partner Program is designed to help channel partners capitalize on Axis' market leadership in the fast-growing network video market. This falls back to Axis' view of building their company around alliance partners. Axis uses their partners as an integrated part of their development and go-to-market strategy.

[33] The Application Development Partner (ADP) program was put in place to help software vendors in their work with integrating their products with Axis network products. This is done through different application components such as Software Development Kits (SDK), dedicated support staff and technical documentation.

company with a very strong customer presence in the New York region and with a specialty of providing security for blue-chip companies.

> I think PEI systems was a great company with stellar customer contacts in the NY region. I helped Niscayah broker the deal and I think that everyone was very satisfied with the Acquisition. (Sandra Jones, Sandra Jones and Company)

Differences in culture

The Axis academy, which was the intended path of education for Niscayah, is still one feasible way forward in order to acquire long-term knowledge of IP. So are different forms of IT certifications. Another way is to have an internally declared intent to move towards a more ICT centric thinking, if that is what you want. Neither Axis nor Niscayah has an explicit learning agenda, which makes it harder to learn from potential alliances.

There are large country differences within the security realm when it comes to IP maturity, which creates something of a paradox for a company such as Niscayah. In one market they need to keep the existing customer base happy by catering to the large analogue systems that are still in place, and on another market there is a need to come up with inventive ways of integrating IP with analogue systems or even installing pure IT systems. This situation creates challenges for upper management when it comes to setting a common strategy and agenda for how to approach setting goals for IP maturity.

> We have significant differences between countries within our organization; even within Europe we see differences in focus and knowledge of how we use technology. (Rolf Norberg, Niscayah)

Of course the described country differences are something that Axis also has to deal with, but in their case it is related to how the cameras will be used. In traditional markets it might only be for surveillance, but in more "advanced" markets the cameras can have a range of uses, e.g. "intelligent" solutions with recognition, tracking, detection and counting built in to the camera and/or the system itself.

> We see a difference in how the markets use our cameras. Some use them only for surveillance and some have other uses such as detection of who is in front of a camera when promotional codes are swiped, some use software to track customer movements within stores and some have alarms that go off if customers have not been helped by a sales clerk when hovering by an item for a given time period. (Fredrik Nilsson, Axis)

Studying the companies Axis and Niscayah, they are both Swedish in origin, and as such the national culture that underpins them is similar. Looking to the fact that there were, and are, cultural differences, we need to understand where they come from. Mainly there is a difference in the organizational culture. Axis has an almost entrepreneurial spirit and very engineering heavy professional culture, whereas Niscayah has a strong heritage from the physical security industry and an eye to security details where acceptance for system failure rates is close to zero. Both organizations have strong professional cultures, but they are also different in so much that Axis has a bias to a highly educated technical IT staff, where Niscayah has a propensity to hiring persons with a military or police background. The later points to a difference in industrial culture, even though they on paper are within the same market. This is most likely due to the fact that Axis started out as an IT company selling print-servers.

Since the companies are structured in different ways and built on very different cultural values and aspects, there was a strong need for trust between the two when the original alliance partnership was first envisioned. In essence two very different cultures that at times have a hard time understanding each other decided to try to find a common ground for partnering. Such a partnership requires a good measure of trust between the partners.

> I don't believe you can do any alliance without trust. When I first came to the US to do business it became very clear that you had to have a good reputation and no business would be done unless people trusted you. That is why both me and Björn Lohne put a lot of time and effort into building longstanding customer contacts. (Trygve Kolstad, Niscayah)

The fact that the two companies are involved in the Lusax research program together indicates that there is some level of trust, but at the same time there seems to be a divergence of commitment to what the alliance should do. This is probably due to the fact that when the alliance was first set up, there was a

lack of dependability between the partners. Niscayah wanted training for its US market, but lacked intent to put it in place. This is quite obvious now since the educational center as well as Axis academies for the US team is still not functioning. Axis' motive for training Niscayah was always to facilitate more sales through an educated sales force. All in all neither party was really interested in learning from the other but would rather continue doing things their way. Consequently there was no learning process associated with the alliance. This is probably the main contributing reason behind the fact that no permanent alliance for training exists. On top of this the regular sales and marketing partnership between the two companies, where Axis has been a preferred partner of Niscayah, appears to be, if not ended, then put on ice for the time being. The two companies' very different perspective on how to do business has just been too big of a strain for it to make sense to continue trying. There are other partners that are more similar in character. One way of highlighting this difference is to look to Axis founder Martin Gren's response to a question about Axis main challenge going forward:

> Our task is to continue to educate ignorance. (Martin Gren, Axis at a SNG presentation)

It is quite clear going by the above text that there are differences between Niscayah and Axis. We could have a discussion around the lack of retentive capacity on both sides. Despite a voiced motivation of wanting to transfer ICT knowledge, little or no knowledge has been transferred in any direction over the years. This could in some ways be connected to a barren organizational context with arduous relationships where disputes on top level have been a restraining factor. However it could also be connected to the voiced skepticism of the new products, e.g. a view of them as not being as reliable or good as older analogue systems. The picture painted is that there were some serious obstacles in the way for the alliance to take place. This is further supported on the Relational side where you could question the strategic fit between the two partners. This is a somewhat hard point since there are significant national differences within the same organizations. It harkens the question if it is the national differences rather than differences in the organizational culture as such that matter. Going back to how the two companies work with relationships, there are big differences in attitude and steering of partners, which of course makes for differences in the amount of Trust they can generate in any given direction. But in the end the differences

in culture are smaller than they might appear on the outset. The biggest and most noticeable difference lies within the organization as such. On an Industry side, both partners are within the physical security industry, and as was already shown in the AssaAbloy and Cisco case, the professional culture within the same industry tends to be similar.

Outside of the framework, Intent again was often used in interview conversations referring to the "opposite of lack of motivation within Transfer Capacity". This to me meant that it was not the same as the attitude factor within the relationship, but rather it was some form of factor controlling a want/need of any knowledge transfer taking place. Furthermore there were also clear differences in culture within Niscayah on a country basis that warrants mention here.

Table 12

Matrix of the factors identified in the second case as relevant in ICT capability transfer

Transfer Capacity	Relationship Governance	Cultural fit	Outside of Framework
Characteristics of knowledge transfer - ~~*Causal ambiguity*~~ - *Unproveness* - *ICT* *Characteristics of the source of knowledge* - ~~*Motivation*~~ - *Reliable* *Characteristics of the recipient of knowledge* - *Motivation* - *Absorptive capacity* - *Retentive capacity* *Characteristics of the context* - *Barren organizational context* - *Arduous relationships* - *Intent*	- ~~*Juridical/Agency*~~ - *Strategic fit/Steering* - *Communication, ICT augmenting* - *Attitude/Intent* - *Trust as a product of the others*	- ~~*Professional culture*~~ - ~~*Organizational culture*~~ - ~~*Industrial culture*~~	- *National culture*

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Case 3: Lenel – HID – inFront

Lenel Systems International works with software and turnkey security systems for corporate and government markets. Lenel focuses on developing products that enable organizations to effectively protect and manage their people, property and assets by IT and infrastructure investments. In doing this Lenel uses its OnGuard® platform, which aims to integrate a full suite of security management functions and technologies using an open architecture design. Even so, Lenel is considered to be part of the traditional security companies with proprietary systems in the bottom of their product portfolio.

Lenel has engaged in several corporate alliance partnerships designed specifically to enhance the OnGuard product line and provide extended value to end-users. The idea is that third party integration could significantly improve their offering by using the OnGuard platform. (This is very similar to what Axis is doing with its ADP program). Two of the alliance partners are inFront and HID. inFront has more than 30 years of experience with development of software to integrate time, attendance and access control systems for Fortune 500 clients. They realized at an early stage that getting time, attendance and access control systems to work of the same infrastructure would make them operate more efficiently. (This is a security application that has vertically integrated into other avenues of the corporation since it now helps gather data of employee attendance, which in turn helps finance to determine monthly salaries). Lenel as a company typically looks to every access control installation as an opportunity to deliver higher return on investment to the end-user by adding functionality. One such thing is time and attendance functionality, and other options are exercised with their alliance to HID.

> We work very hard to offer our customers the highest possible value of their security installations; we do this with the help of our alliance partners. (Josh Philips, Lenel)

HID is a leading manufacturer of secure identity solutions and contactless smart card technology for physical access control. Even though the company as such is only 20 years old (it was founded in 1991 as a subsidiary of Hughes Aircraft), it currently holds the majority of the US market for access and ID management solutions.

HID Global and Lenel offer customers solutions by jointly developed products and technologies that allow seamless lifecycle management of the badges needed for entry into secure buildings. They have achieved this by facilitating OnGuard integration of HID's Networked Access Control Products with Lenel's software. What this really means is not that they have jointly developed software, but rather they have opened up their API's[34] towards each other in order to let the two soft-wares interact.

> I think that the market is extremely diversified and there is a real need to understand what's next. That means that manufacturers need to be a lot closer to the market and inter-operationability is going to be key. This means that we will see more open access alliance programs in the future. (Kevin "ET" Wine, Lenel)

It is quite clear that Lenel puts a lot of effort into different forms of alliances and into understanding how each alliance can help them sell more products and how the alliance and the integrated product that offers it can help increase value for the end-user. Lenel proclaim that they have a belief that the alliance help with product development, e.g. by maximizing the utilization of different applications in order to support the OnGuard platform. Looking to the overall reason for forming the alliance, it seemed to be mostly sales driven since successful sales from Lenel often leads to more sales for HID and inFront. That being said, the alliance has offered increased customer value because of the vertical integration mentioned above.

> We believe that by partnering with for instance Lenel we have a better possibility to sell our software solutions, but also we can offer our alliance partners, which are mostly security integrators, to respond to rising IT demands and increasing demands on ROI figures for integration projects. (Christopher Laibe, inFront)

Even though the partnerships described in this case are called alliances, it is still not a situation where any of the partners are allowed to change or add anything in the other partner's systems. Rather there are SDK (Software

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[34] *API Application Programming Interface* is a "rulebook" of how certain software communicates with other software. More often than not, the rules are defined as different call functions that can be utilized in order to access specific information from the program.

Development Kits) that the partners can program in order to make their products run on each other's system.

Getting the alliance to work
Despite a somewhat less frivolous alliance concept, it was interesting to notice the level of trust needed between the partners since there is also competition between the partners when it comes to sales. HID, for instance, is owned by AssaAbloy who have other complete turnkey security systems such as Hi-O. It could mean that HID would, or should, sell AssaAbloy solutions rather than Lenel solutions.

> HID is working with Lenel, but also with Microsoft in an alliance called "Crescendo". We are quite adept at having many partnerships. (Gary Klinefelter, HID)

The competitive threat is remedied in part by different securing mechanisms. The incorporation of alliance partners' resources within the firm's own resources, i.e. interoperationability of hardware and software, helps to secure the alliance. Another way of securing customers is to keep the customer contact intact and not involve partners to any larger extent in sales and after sales activities. Then again, one of the biggest challenges to date when it comes to the convergence of IT and Physical security has been to get customers and sales organizations to accept that change is inevitable and that it is for everyone to decide if they are going to be laggards, early adopters[35] or something in-between.

> I think the biggest challenge we have with IP enabled hardware components is to sell them internally. (Eric Michelsen, AssaAbloy)

The fact that it has proven hard for many physical security companies to adopt IT is one of the reasons to why the convergence is taking longer than many from the IT community had originally envisioned. But with larger companies

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[35] Everett (1962) first described how technology spreads in different cultures in his book *Diffusion of Innovations* from 1962. This is where the now classic bell curve described what the technology adaption lifecycle looks like with the classic dissemination of "*innovators, early adopters, early majority, late majority and laggards*".

such as Lenel showing an active interest in incorporating IT solutions with their Onguard system, the change is happening. Over the years Lenel has started to forge strong relationships with the IT community, partnering with companies such as Oracle, NEC and Microsoft. Just looking to the inFront alliance we can also see that they have bridged the gap of understanding how security and HR can utilize many of the same systems in order to keep track of employees as well as vetting them before they are hired. This is a first step in both helping the customer visualize the total cost of ownership of a system, but also a step towards a true one stop shop for the end-user when it comes to security related issues (be that fences, attendance or climate control within buildings). In my estimate Lenel is the one security company who has come the farthest when it comes to integrating systems in order to bridge as many knowledge gaps as possible.

According to the interviewees there is trust within the partnerships, but this is also supported by formal contracts. Lenel has specific resources allocated towards the alliances and what is needed to manage them. Lenel as a company has an evolved alliance team and structure since they believe that alliances are necessary in order to do business in the modern security realm. This means that they have a culture of building and cultivating alliances. They have two clear goals to any alliance according to Josh Philips of Lenel:

1. Supply and Demand: What is it that customers would get out of an alliance when combing companies? A distinct advantage for the customer needs to be present.

2. Determine the degree of success. What is the mutual commitment to generate or develop business together, i.e. how will we make money, and how will we measure costs and profits?

Aspiration with the alliance
For Lenel the alliance program started in late 1990 with the specific aim to gain value in the value proposition towards customers. The open access alliance program has similarities with other partnership programs in so much that it is about opening up the use of a company SDK in order to develop an interface. This is no different than other alliances where the aim is not to specifically develop a new product jointly, but rather to let more products interact and work with the own product. The positive thing with intermixing

products is that customers will get less locked in, and this is probably a start to get rid of the proprietary systems that are on the market today.

Lenel's alliance team is supposed to help third party vendors such as Axis, Niscayah or HiD with their sales and marketing. One of the challenges they have faced is to maintain both the internal and the alliance partners' enthusiasm by throttling commitment and thereby trying to ensure returns on the alliance investment. It is hard to specifically define customer opportunity and what the end-user needs to succeed. They claim that one project, with one problem that needs answering, can define the course of both the alliance and the partner company's business. Sometimes the customer actually rethinks its complete program when working with the Lenel's alliance team, but according to Josh Philips this usually only happens when there is someone really forward thinking on the opposite side of the table. Most often Lenel only see incremental steps in their alliance work. Today many of the alliances are formed around specific projects, and this often creates an absence of analysis of who the stakeholders are and how they can influence the partnership. Typically they are reactionary alliances formed as a result of a situation that has emerged without a clear roadmap and path of action, which is not conducive with a learning experience.

> There is always a cost of joining an alliance program. Just getting to the point of having a foundation to build alliances on will cost you time and money (we call this on-ramp stuff) and you still haven't started doing business, and we have so many examples of how the On-Ramp isn't aligned with the "freeway driving" that is supposed to take place. This is why Lenel has put time and money into building alliance structures. (Josh Philips, Lenel)

Lenel's alliance program is focused towards how two or more partners working together in order to get a better value proposition for the customer, e.i. it is customer value oriented. This means that they put resources into both understanding and valuing "who" does the work in the alliance, but also into discussing and negotiating how the potential benefits from the alliance should be received and divided. The thought behind this is that the alliance will not start being beneficial until everyone knows and understands the products that are available due to the alliance.

They also work with what they call *the path to execution* (which they define as a *to do list*), e.g. when and if an end-user indicates an interest in a joint product

mix, who should be the partner contact in a specific case? In essence the Lenel thinking is that the alliance will not be beneficial until partners start promoting each other's business.

Differences in culture
Talking to the respondents in the interviews, they did not perceive that they had any great cultural differences with many of their alliance partners, and none with the partners in this case. One big challenge they did face with their alliance was in solution delivery or channel opportunity. It is hard to see which alliances will be successes and which will be failures. This uncertainty has led Lenel in some instances to establish a basic technology alliance to test the waters of working with another firm. This can aid in managing everyone's expectations of what can be delivered. If enough commitment is demonstrated and early success is experienced, then possible distribution or channel relationships may develop.

Neither one of the companies had dedicated functions or systems in place to take advantage of potential learning outcomes of the alliances. This is interesting since Lenel for one has identified one big challenge with the alliance, which is to maintain resources and commitments, especially in reference to transitions to new employees when alliance founders move on to new roles or leave companies.

Discussing this potential shortcoming, it became quite clear that to have an ability to calculate what alliances contribute to new sales would be very beneficial to all alliance partners. This in turn could fund new alliance initiatives, which could lead to greater alliance participation and loyalty, and loyalty tends to drive introduction to new business opportunities. According to Josh Philips, an ability to show how everything would come full circle would be very helpful. What factors or indicators of alliance success are there and what is the potential impact of them? But even though there are great uncertainties with the alliances formed, there is an emphasis that management generally endorses and provides support for alliances. Alliances hold exciting potential albeit so many prove fruitless. The potential risk that all alliance mangers run is that upper management can grow numb to supporting alliances and start lessening support or even provide minimal support.

The alliance studied here was about aligning organizations and working structures in order to deliver added value to each alliance partners' product offering. The clear intent of all was to integrate their products in order to

create a better product for the end-user, which would indicate a learning process being in place. During the interviews it seemed as if the level of trust was of medium value since there are alternative alliance partners available for all. However the interpretational functionality developed between the partners' resources acts as a lock-in mechanism with an increase in trust and interpersonal communication skills that was beneficial for the alliance.

Reflection on the Lenel-HID-inFront alliance starts with the fact that Lenel was the only company with an expressed alliance function. Some of the results surprised a bit. Maybe the strongest surprise lay in the fact that this case never mentioned culture as an issue for their alliances, but rather used others words and idioms for the key factors of alliance success. The fact that Lenel had a documented ability to work with alliances also meant that they had at least some transfer capacity in place. Instead of having a lack of motivation from the source and/or the recipient, there was a definite motivation. This motivation also made its presence felt in the manner that there would appear to be both an absorptive capacity as well as a fertile organizational context, at least in so much that new products and mixes of products are put forward as a result of the alliances. Lenel as a partner is seen as reliable, and partners are comfortable in using their platform for ICT development. It is not clear if any ICT knowledge transfer as such takes place, but rather the alliance measures sales and marketing activities as the value creation for partners. Another very interesting tidbit of information came from Kevin Wine at an early interview, where he – as it turns out – said something that I would have reason to revisit later on in this thesis:

> Neither Mergers & Acquisitions nor Alliances are relevant or irrelevant! The customer just wants a product! (Kevin "ET" Wine, Lenel)

Looking at the relationship governance, the alliance contained all of the aforementioned factors. A mix of inherent agency of the partners as well as formal contracts help stipulate how the alliance will be steered and communicated. There is a real driven attitude in how to handle relationships with specific resources allocated for this task. It looks to both communications internally and externally and to how a strategic fit is achieved while promoting each other's businesses at the same time.

As far as culture is concerned, the only discussion on that topic is that the partners see no great cultural differences. This could of course be a

consequence of having good steering, communication, and strategic fit, which potentially alleviate cultural differences.

There were a couple of factors mentioned outside of the framework, e.g. Intent in the form of resources allocated to the transfer of knowledge, and more importantly, Intent as a function of knowing how and why alliances will bring value to its partners. One further factor connected to this was the necessity to measure the alliance relationships.

Table 13
Matrix of the factors identified in the third case as relevant in ICT capability transfer

Transfer Capacity	Relationship Governance	Cultural fit	Outside of Framework
Characteristics of knowledge transferred - ~~*Causal ambiguity*~~ - ~~*Unproveness*~~ - **ICT** *Characteristics of the source of knowledge* - *Motivation* - *Reliable* *Characteristics of the recipient of knowledge* - *Motivation* - *Absorptive capacity* - ~~*Retentive capacity*~~ *Characteristics of the context* - *Barren organizational context* - ~~*Arduous relationships*~~ - **Intent**	- *Juridical/Agency* - *Strategic fit/Steering* - *Communication, ICT augmenting* - *Attitude/Intent* - *Trust as a product of the others*	- ~~*Professional culture*~~ - ~~*Organizational culture*~~ - ~~*Industrial culture*~~	- *Measurability* - *Value creation*

4: ONVIF

The Open Network Video Interface Forum (ONVIF) is an attempt to create an open standard for interfaces that are meant to work on network video products. The ONVIF initiative was started by Axis, Bosch and Sony in late 2008 as a non-profit organization where the goal was to work for:

- *Standardization* of communication between network and video devices

- *Interoperability* between all network enabled video products regardless of brand

- *Openness* meaning that all companies and organizations that want to join should be allowed to do so

The driving force behind the organization is to achieve true interoperability between network video products, and in the future it is not inconceivable to see the organization expanding to include all network enabled security devices. Thus this could be seen as an indirect way of transferring ICT capabilities into the security industry. The ONVIF organization claims that a global interface standard will be conducive to a more open purchasing pattern where the interoperability and flexibility increases all aspects of the vertical. Integrators and consultants will have an easier time to set up and specify systems that allow interchangeable parts. End-users will have greater flexibility to choose between products and vendors of products and, in the end, a more flexible and future proof installation that lowers total cost of ownership. Manufacturers and Software venders also benefit since interoperability means less special solutions, less in-house development and a greater overall market to sell to. This should mean greater variety and more competitive pricing for the end-user.

The picture painted here is the utopian one where everything is connected and interchangeable. It is, however, probably not unfeasible considering a very similar situation existed in the home computer industry market during the 1980s, and today we do not worry untoward about interchangeable parts within the regular computer industry. What can be said is that even though the IT industry is renowned for the speed at which it changes, it still took close to two decades to get to a point where interchangeable parts really existed on all levels of the home consumer market.

Discussing the reasoning behind the alliance that makes up the ONVIF partnership, it seems there were different driving factors. One important aspect was the need to drive the technology shift discussed earlier, where the potential of a standard would utilize converging more hardware onto IP based platforms (see chapter 4).

> The main goal with the ONVIF initiative is to drive the technology shift (this is one of the biggest inhibiting factors for the industry), secondary ensure that we as market leaders are associated with the new standards. The long-term goal is that driving standards is good for the end-users. (Ray Mauritzon, Axis)

Another important aspect was that there were competing initiatives in the market space that were neither conducive to Axis, nor to the other original partners. The oldest body when it comes to promoting standards setting within the security industry is the SIA standards committee who has worked on forming a standards specification document for more than 7 years. To date, SIA has had a hard time of communicating a standard that could be accepted within the security community.

> I believe that the ONVIF standard was a reaction to the fact that the SIA standard would be such an abomination of a technical implementation that, had it been implemented, it would have been a problem for everyone, and Axis had to do something. (Glen Greer, AssaAbloy)

It is interesting to note that the physical security industry has had standards setting on the agenda for some time. The OSE (Open Security Exchange) was founded in 2003 by Computer associates HiD, Jem-plus now Jem-alto and Tyco (fire and security). They created PHYSBITS as a first step towards standards to help the Physical Security bridge the knowledge gap towards IT Security. PHYSBITS is a vendor-neutral approach for enabling collaboration between physical and IT security to support overall enterprise risk management needs.

Another actor on the standards and quality assurance scene is the Security Executive Counsel that works with what they call a general lack of documentation and understanding of work-processes. The SEC claim that 75% of security programs are being remade every 5 years due to this lack, creating a "Security roulette" according to Bob Hayes of SEC. When upper management keeps hiring people from different walks of life into the CSO position, there is a lack of continuity as well as a problem of lack of peer review.

To round things off, there is a direct competitor to the ONVIF standard called PSIA. PSIA is a Cisco led standard that was launched quite promptly when it became clear that the ONVIF idea was starting to materialize. It was

originally comprised of organizations with smaller IP market-shares than Axis, Bosch and Sony, but today Cisco adheres to both standards.

> The PSIA challenge of having two close initiatives running at the same time was not planned, but managed quite well. The ONVIF initiative was therefore accelerated since we wanted to set the standards and not the competition. (Ray Mauritzon, Axis)

> ONVIF had been in the works for some time under an umbrella work with HID, but when the SIA standard as well as the PSIA[36] standard was getting stronger we decided to accelerate the work and do it under a separate organization. (Ray Mauritzon, Axis)

Aspiration with the alliance
The ONVIF alliance today has more than 90 members in fields of device manufacturing, video-management and integrators. When the program first got off the ground, the challenge was to keep it small and nimble in the development phase. At the same time there needed to be significant buy-in in order to get a respectable membership count when it was launched.

> We believe strongly in alliances, but there is often a case of needing more time to work with them. In the Onvif case I am responsible, but at the same time I have all my regular duties as well. (Jonas Andersson, Axis)

Looking to standards as a tool that will promote ICT is not incorrect. In both chapter 1 and chapter 2 I argue for how ICT engages across disciplines and thereby also facilitates and drives change. The advent of standards works as a catalyst and enabler for interdisciplinary ICT work which further accelerates convergence. In the case of Sony, Bosch and Axis, they all had significant experience from the electronics and computer field. In Axis' case, they also had an idea very early on that they would have to educate the physical security industry on IP cameras and the use of IP enabled devices on secure networks. On top of this, it is never easy to be the catalyst for change. Both people and organizations resist change in almost all ways possible (Gibson et al., 1997). Realizing that there would be resistance both to the IP cameras themselves and to the potential change they represent, Axis very early on developed a plan

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[36] PSIA: Physical Security Interoperability Alliance

for how to deal with the expected resistance. This is what started the Axis academy that focuses both on teaching about Axis specific hardware and on IP technology in general. Sony and Bosch have not gone as far, but they have long experience from analogue cameras that they now utilize to produce and install IP cameras. In Sony's case they are also the de facto standard when it comes to delivering the optics or lenses within most cameras on the market, both IP and analog.

Looking to the fact that many of the members of ONVIF are in direct competition, it is clear that there had to be some clear cut rules and regulations that all members had to adhere to in order to join. According to Jonas Andersson, one of the first things that the original partners did was to sit down and really hash out these rules and regulations and state specific goals and intentions with the alliances.

It was also clear that there had to be considerable trust in the beginning for the three original members to start working with the alliance. As was stated previously, one of the first things that was done within the alliance was to take care of as many legal issues as possible. This meant that there were considerable resources put into play almost immediately, forming formal contracts and agreements which included goals and KPI for the project as such. All the original members agreed that there had to be openness as well as accountability for the ONVIF forum to work. They wanted to have as much as possible mapped out in advance in order to have fewer problems down the line. The ONVIF project was also made into a non-profit organization in order to keep it separate from the founding organizations.

> We put a lot of effort into setting up rules and regulations over how we wanted the ONVIF participation to work. We, the founding members, had a pretty clear idea of what we wanted to accomplish over the shorter period of time with the ONVIF standard. We have now reached this and it will be interesting to see if the rules and regulations will work when we want to expand in different directions. (Ray Mauritzon, Axis)

Even though anyone can join ONVIF, to be in the steering members group you have to be voted in by the founding members. This is to ensure both continuity and preservation of the original thoughts and intent of the charter until it had gotten sufficient traction in the marketplace. Trust between competitors started the collaboration, but contracts, openness and

accountability keeps it going at this point, as well as a belief that all participating members will see an overall increase in sales and revenue due to standards setting.

The culture within the ONVIF program is very similar in terms of the individual founding companies professional culture, but somewhat dissimilar when it comes to organizational culture. This is not strange considering the size and age difference of the firms. That being said, it seems as if the technical staff whose responsibility it was to hammer out rules, regulations and charters for the collaboration were all of the same professional culture and had little problems communicating and finding ways forward.

> We needed a functioning infrastructure in order to not get bogged down with unnecessary work, but the most important thing was to work with the partners in order to get good relations that we could build on. (Jonas Andersson, Axis)

The infrastructure as well as formal contracts enabled partners to feel more at ease with the alliance, which freed up time to work on producing physical products that were ONVIF certified. This production is done on a "per company" basis meaning that it us up to each partner to produce however many or few different products that conform to the ONVIF standard as it wants. For the ONVIF organization as such, the next step is to get more and more certified products to market and get some of the envisioned resulting benefits. This will eventually mean that the consumer can interchange parts to a far greater extent than what is possible today. An even more tantalizing thought is that with fewer platforms to develop towards, the software producers will have the ability to do a lot more development as less time is put into conformity issues.

> Once we get different vendors to start using the ONVIF standard we will see huge potential for our ADP partners, and eventually the end-users will see a situation where it is easier to interchange parts than it is today. (Fredik Nilsson, Axis)

But there are more far-reaching cognitive factors than just potential for ADP partners and more interchangeability for the end-users. Today companies need to work together in order to create new products, and it is imperative for

3rd party vendors to have standards and functioning SDKs[37] in order to create new and alternative uses of both physical security products and pure ICT software. As the security industry converges more and more with the IT industry, we will see more knowledge sharing over former standards and demarcations. This will inevitably mean that we will start seeing hitherto unthought-of crossovers with new product uses as well as new business ideas as a natural consequence of this.

> PSIA standard for access control is interesting, and we are somewhat involved in this but we do not see it as a problem to use both ONVIF and PSIA on the same system. If you have IP enabled products that work of a network they should work on a IT network. (Glen Greer, AssaAbloy)

Axis relied heavily on their prior experience from their ADP program when they started setting up the ONVIF project. Knowing how to set up proper Intellectual Property Rights (IPR) contracts as well as rules of engagement was an essential part of setting up goals and targets for the partnership. They used prior alliance knowledge when setting up the alliance initiative. One result of this was that the three founding members had all contracts, IPRs and, most importantly, the first technical specifications in place before anyone else was invited to join the ONVIF organization.

> I had to force a meeting in Washington in order to get the important IPR contracts properly implemented. This ended up helping us all a great deal, but I think the most important thing for the success of the alliance was that we had the first technical specification done before we allowed any other companies to join. (Jonas Andersson, Axis)

Going forward with the alliance
Today the ONVIF alliance partners have started to produce hardware that is compatible with the standard, and the next step we should see is software providers being able to sell one software product that works with all hardware, meaning lower development costs and a higher possibility of added functionalities. This has been possible due to both the formal contracts ensuring stability to the alliance and, more importantly, the fact that

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[37] Software Development Kit

information on technical infrastructures has been made both readily and easily available through the ONVIF organization.

Having clear paths of information and an alliance infrastructure that has a joint technological platform to start off from has not always been the case. With the H.264 video compression standard, there was a lot of hustling and lobbying to prolong the release of software running on this standard, when it turned out that only one of the major IP camera players had a product to sell. This prolonged the release of functioning H.264 cameras to the general public with at least one year, which can hardly be in the best interest of the end-users. Then again, most IP installations today are done with larger customers who are better equipped to make a decision on "why" and "what" they need.

> All larger security installations today are pure IP, nothing else is really discussed. The real challenge is to sell IP to installations with less than 32 cameras. (Fredrik Nilsson, Axis)

In summary the ONVIF alliance was in many ways different than the other cases. The biggest difference was that this was an alliance that was centered around an open industry forum put in place to specifically drive and promote a global standard for the interface of IP-based physical security products. This alliance was also started by what can only be described as IT players within the security industry, and as such it was always about how ICT could augment the physical security industry at large. Looking to the transfer of knowledge, it was actually quite hard to see clear references to this since most of the interviews talked about relationship governance as the important aspect of the alliance. But there was a clear motivation from all participating members. The question is if they were only the source of knowledge here. In essence there was no recipient of knowledge within the ONVIF alliance as such, but rather there were recipients for what the standard enabled. What was quite clear was that apart from different relational aspects, there was a need for buy in from the original participants and also subsequent new members. This meant that there was a need to a perception of reliability and motivation from the founding organizations.

The most important factors for all involved within the ONVIF alliance was without doubt found within relationship governance. The alliance was founded on firm juridical contracts with clear paths of communication that were augmented by a joint ICT platform. The members were also quite early

in stating goals and intentions, which led to a strategic fit, at least on paper, as well as clear rules for steering and communication.

Interestingly enough, there was little discussion on culture within the alliance, since the interviewees agreed that they had similar professional cultures. Their respective organizational cultures' differences meant little in this context, i.e. within a new organization created for the purpose of promoting standards setting.

There were some factors outside of the framework as well, where the more noticeable one appeared in a discussion around how the environment in which the alliance is taking place influences. Another important factor that was voiced refers to the intentions of the alliance, where it was seen as paramount to discuss, voice and document all parties' intent in order to get a strategic fit. Both these two issues could possibly be fitted within the framework. I will discuss this possibility in the analysis chapter.

Table 14
Matrix of the factors identified in the fourth case as relevant in ICT capability transfer

Transfer Capacity	Relationship Governance	Cultural fit	Outside of Framework
Characteristics of knowledge transferred - ~~*Causal ambiguity*~~ - ~~*Unproveness*~~ - *ICT* *Characteristics of the source of knowledge* - *Motivation* - *Reliable* *Characteristics of the recipient of knowledge* - ~~*Motivation*~~ - *Absorptive capacity* - ~~*Retentive capacity*~~ *Characteristics of the context* - ~~*Barren organizational context*~~ - ~~*Arduous relationships*~~ - *Intent*	- *Juridical/Agency* - *Strategic fit/Steering* - *Communication, ICT augmenting* - *Attitude/Intent* - *Trust as a product of the others*	- *Professional culture* - ~~*Organizational culture*~~ - ~~*Industrial culture*~~	- *The environment in which the alliance takes place*

Summary of the cases

The main focus of the cases was to identify which factors are perceived by the interviewees to influence the alliances formation, continuation and termination. The cases are also used to test the preliminary theoretical framework and identify other potential factors of importance. During the interviews almost all factors from the preliminary framework were mentioned at least once.

Transfer Capacity
In examining Transfer Capacity (TC) and the ability to recognize, assimilate and use information, we have to look for signs of a company's ability to codify, express, translate and use both tacit and explicit knowledge. TC relates to factors such as committing resources to learning, development and continuous improvement. It encompasses both the alliances as such and, more importantly, what the alliances strives to achieve, be it sales, R&D or something else entirely. What I was looking for was evidence that learning took place and/or that knowledge was transferred in some way. Furthermore I was also interested in if the alliances were successful or not, and in some ways how that should be measured in order to give an accurate picture of what could constitute a success. Since there was no clear cut way of determining what should be considered a success, I decided to have a dialogue with the reader at the end of each segment in order to reason around the potential success or failure of the alliance.

1. AssaAbloy's shared technology department was looking for a partner that could help them integrate mechanical locks into an IT network. Their goal was to develop platforms that facilitate interoperability between different AssaAbloy products and new technologies. Cisco as a company is always looking for new ways that IP technology can be utilized, and aligning with AssaAbloy offered a faster route into the physical security market. It was unclear if AssaAbloy really wanted to learn or in actuality were more interested in getting a functioning platform to sell more products on. What was clear was that they were extremely interested in transferring the knowledge Cisco had, be that as a product or as knowledge to build a product. In the end AssaAbloy seem to have gotten everything they wanted out of their Cisco alliance, both a transfer of some IT knowledge and a product to sell.

They now have a fully functioning open platform (HiO) that has enabled them to connect a multitude of products onto a network. In Assa Abloy's case I would argue that TC was present and that it was a success both as a learning platform and a way of getting a product to market.

Looking to Cisco, they are still struggling to enter the physical security market, albeit they have a very strong position within IT security which will serve them well as the two industries get more and more intertwined. The apparent lack of cognitive functions was soon apparent, where the absorptive capacity was quite different between the two organizations. It was never apparent that Cisco wanted TC to take place; rather they wanted a shortcut to security sales channels. There was a low level of personal agency between the two organizations as well as on individual levels, which resulted in a low level of Transfer Capacity. In essence the lack of formal structures and functions to support the alliance meant that it was hard to get any intentional transfer of knowledge to take place, but what transfer did take place was at Assa Abloy. I would argue that TC did not take place at Cisco, but I cannot claim that it had a negative impact on Cisco. They have done more alliances, joint ventures as well as M&As within the security industry and now have both video analytics as well as camera products on the market.

It is interesting to have a discussion around what hindered or helped TC in this alliance. On the one hand Assa Abloy were motivated to learn and to try to absorb Cisco's knowledge as well as technical platform into their product line (even though it was unproven technology which should have hindered this train of thought). On the other hand Cisco, at least after the initial year, had a strained relationship to security at large, which made for an arduous alliance relationship. This was furthermore coupled to a lack of motivation to really learn from an organization or even branch that was seen as lacking in technical knowhow where it counted, i.e. within IT. This would all point to an alliance that had every opportunity to fail. There are – some – problems with this thought. First there was no formal agreement on what should constitute a success in the alliance, which makes it hard to say anything at all. Second even though the alliance is no more, AssaAbloy did transfer knowledge and they did

get products to the market. On top of this Cisco did originally have a great access to the physical security market and they did have the potential to sell more hardware because of this. In the end I would have to say that the alliance was a success and that TC took place and was successful at least in so much that a security company got IT knowledge and skill transferred.

2. The main issue for Niscayah was to train their sales force and their installers in how IP cameras function on a network and potentially how other systems become more and more integrated over an IT network, whereas Axis has been on a quest to get installers to use IP cameras, where they would argue that it is essential to train as many as possible in the merits of going IP, hence the different training programs. What this meant was that the TC that was to take place really was about educating Niscayah personnel.

In the case of Niscayah and Axis both companies failed to create sustainable value for their partner that could have ensured that knowledge transfer and thereby learning had taken place. From Niscayah USA it was quite obvious that they needed to know more about IP cameras and how IT network could enable them to sell more products in either new markets or developing existing markets, e.g. healthcare. The educational center, or for that matter even training, was hampered by both a lack of motivation from top management as well as relationship problems between top management that were purchasing oriented and other management that had additional focus.

In retrospect it is somewhat baffling to look at this alliance since there was a real motivation from the source of knowledge to transfer knowledge, but in actuality there was no real motivation from the recipient of that knowledge. This meant that in essence there was no reason for the partners to have an alliance. Axis wanted to sell cameras by educating about IP technology, and Niscayah mainly wanted to get bigger discounts on the hardware. This meant that on low to midlevel management within Niscayah, there was a motivation to learn and a notion that TC was important to reach success, but on upper management level discounts and sales, here and now took precedence. This left the alliance with a situation where no TC took

place and there was neither a success story in learning, nor in sales. Furthermore there were voiced concerns from midlevel management at Niscayah that they had both a lack of absorptive capacity as well as a lack of retentive capacity, which ultimately meant that it would be very hard for any TC to take place without significant resources being put in place.

During the time of the study Niscayah purchased another physical security company and focused more on their core values of selling installations within the physical security industry, i.e. business as usual. This only served to further the arduous relationship between the two companies as well as strengthen Axis' perception that they could not really rely on Niscayah to be committed to training and sales of IP cameras. From Niscayah's point of view they had a hard time putting Axis as a company into a functioning context. What they really wanted was a way to get cheap IP cameras (at least compared to the competitors) and if possible subsidized help with building a functioning team around IT/IP camera technology.
At the end of the day the alliance was not a success since there just was not any joint view of what needed to happen. There was no transfer of knowledge, and no new products came to customers due to this alliance.

3. For Lenel and their partners, the ICT part of the alliance was to be a facilitator of converging software and hardware. Lenel has managed to get a pure IT company such as inFront to use their time and attendance software and integrate it with Lenel's access control system. The access control system, in turn, uses HID's edge devices as readers at the points of the systems, i.e. the physical card readers. For HID it was a way to start offering software for computer access control.

Looking to the alliances Lenel has set up, I would argue that that main purpose is not transfer of knowledge between the companies per se but rather a transfer of knowledge that enables them to connect different product portfolios in order to create a new or improved product for the end user. In one way that means that TC is important in so much that it ensures productification and new sales, but on the

other hand, there was no evidence of actual transfer of knowledge to – for instance – reproduce partners' products, between the different companies. I would argue that having what I call Transfer Capacity (learning took place or knowledge was transferred) was not important to Lenel and its partners. Rather it was the knowledge of how to use and develop each other's products based on the own customer base that was important. Concretely this meant that both Lenel and inFront had functions in place to communicate and learn how to use and integrate from their partners product portfolios. In inFront's case, partners were so important that their front page[38] showed their three top alliance partners and nothing else.

This leaves us with a situation where TC is not discussed as being important between the alliance partners, but there is still considerable success with the alliances. Where the alliances are monitored for value creation as well as resources gained and used with(in) the alliances.

4. The ONVIF founding members were initially all from the IT side. Today we see a greater mix of companies, but in the beginning the IT companies used their software development knowledge in forming guidelines for how current and future development should integrate into the platform. More importantly they had prior experience in driving   development   projects.

In the case of ONVIF, it was obvious that the partners relied on prior knowledge from alliances when setting up this one, which for instance meant knowing to put formal legal contracts in place before going forward. The notion of TC, however, was never really on the table between the different partners. The voiced concern was to get standardization to work for each company in order to avoid double work and to bring a semblance of stability to the field of IP cameras. It was interesting to study the partners in so much that they seemed keen on taking as much as possible away from the alliance partnership with sustained credibility. On the other hand there was a sense that the security industry as such lacked the absorptive capacity to take in

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[38] http://www.infrontusa.com/ 2010-06-01.

what it would mean to have a functioning standard for IP enabled products. In some ways this is quite understandable since the physical security industry has prided itself on proprietary products. However it had at this point in time become if not clear, then at least clearer, that convergence was taking place, see for instance the convergence matrix by Weaver (2008), table 7 in chapter 4. With convergence in mind, it would stand to reason that the first order of business for any incumbent would or even should be to find as many alliance partners as possible in order to transfer knowledge and create products to take to market. In some ways the material supports this in so much that the recipients of TC did not lack motivation, but as described earlier rather the IT companies lacked the motivation to really go all the way with the standard.

Relationship Governance

Looking to how organizations entering into alliances govern their relationships, there were a number of factors that were of interest. Chief among them was trust. Trust is a product of all other relationships factors that helps with control and coordination of the alliance itself, which ultimately helps organizations lower the transaction costs of the alliance.

1. When the HiO project was first launched in 2006, it seemed as if the attitude towards the alliance was the same from both companies. As time progressed, it became more and more obvious that this was not the case. AssaAbloy's attitude was to build and maintain physical security units that could be connected to an IT network, whereas Cisco in the end only seemed interested in selling networking technology and getting a speedy entry into the security realm. After Cisco made a number of acquisitions within the security industry, top management changed strategy towards video surveillance instead of access control.

   The original thought of a joint attitude around the alliances – probably shared by both parties – began to fall apart when the strategic fit between the two companies ceased to exist. This falling apart was in part due to the acquisitions mentioned, but also to key persons being removed from the Cisco team. This, in conjunction with a lack of top management commitment from Cisco's side and

an absence of formal contracts as to how and what was to be the outcome of the alliance, meant that what joint attitude there was in and around the alliance quickly deteriorated.

In the case of AssaAbloy and Cisco the trust issues were divided. There was real trust between the individuals that initiated the alliance work and maybe also between the different professionals involved within the project. There was less trust on a corporate level since each company had its own agenda, and they were not congruent. As management changed over time, the trust dissipated until there really was only a professional trust between the individuals who had been active with the actual product development. I would also argue that AssaAbloy quite early on was the driving force to get something to market, and as that actually materialized, the commitment to the alliance diminished.

Even though we talk about relationship governance as a concept, I cannot say that I saw the thought of governing the alliance relationship as being present. There was no specific path of communication set up between the organizations, and their Juridical documents did not help govern the alliance. There was agency between the small groups of individuals from both companies that helped set up the alliance in the first place. I would argue that without them, there would have been neither an alliance, nor a product. This would implicate that relationship governance was present, but that it was mainly controlled by personal agency and trust rather than other factors.

2. Just as in the AssaAbloy Cisco case, there was an initial idea that the attitude was the same from both partners. As time went by, it became apparent that each partner had its own agenda. This in itself is not something unique or special, but what was interesting was that the different business agendas were not contained to Axis and Niscayah as separate business entities but also internally within both companies. What this meant was a certain strain on how to achieve a strategic fit on all levels of the organizations, which naturally put more pressure on how to steer and communicate in and around the alliance.

Another interesting aspect of the alliance was that even though there was no formal alliance contract or any real agency between the two organizations, there was good and functioning communication and a general good level of trust. The fact that Niscayah and Axis maintained some level of trust, even when there were strains on the alliance, indicates that there must have been agency in place even though it was not indicated directly. In my opinion, the trust was always strong on a personal level between individuals of the two companies, but when it came to company policy or understanding the alliance partners' business agenda, there was less trust and understanding. In the end the corporations decided to not work that closely together, which could indicate that the corporate trust superseded the individual trust.

Thinking about relationship governance between the two organizations, I would argue that even though there was no formal contract or even policy around this, one formality existed. For almost 5 years, parts of upper management from both organizations met regularly for the biannual LUSAX reports, which inadvertently meant that there was room for underhand communication, trust building and an informal way of streamlining attitudes.

3. In Lenel's case the alliances were structured around legal contracts since most of them had to do with sales and product development. The overall attitude was to get a better product offering to the end-user. For Lenel this meant the alliance was about using 3rd party vendors to increase what their platform can and could do. For the vendors, it was another channel in which to market and sell their product. This meant that the partners were actively looking for different strategic fits as well as how to steer and control the alliance. This was done with contracts and formal and informal ways of communication. There was no specific discussion around how this communication took place, e.g. if ICT played a specifically important part, but both formal and informal communication was normally done over the phone, e-mail or Skype which are of course all different ICT tools.

4. Looking to the Lenel alliances, there were never any mention of trust per se, but rather here was a discussion around the values of the alliance. I would claim that there was a real thought around how to govern their alliance relationships; they were controlled with legal instruments as well as values and cultures (which will be discussed in the next segment). What this meant – however – is that they had Relationship Governance in place and that this in itself was a key factor to success.

5. Studying the ONVIF alliance, the attitude that was communicated was that of an alliance that was put into place in order to drive technology change within the security industry. The alliance would achieve this by promoting a technology standard that all IP enabled security products could potentially adhere to. This alliance was structured around strict rules and regulations from the start. The original partners were actually competitors, but they still saw a strategic fit in their alliance in so much that they together covered most of the IP enabled camera market. This could potentially ensure that their standard would stick. In retrospect this happened since the competing standard, started by Cisco (PSIA), did not achieve any real traction.

   For the ONVIF partners there was trust in the relationship in so much that they set up the partnership, but most of the work was done under contractual agreements.

   This alliance was all about relationship governance, first and foremost in how it was set up with different organizational levels and strict regulations around how to move between different levels. The original partners are still the only ones in the steering committee that ultimately controls the ONVIF organization.

Cultural fit

There were a number of differences regarding cultural aspects of the project. One of these was not covered in the original framework, namely national culture. Going by the cases, it appears motivated to not include it in the framework. That being said cultural aspects have always been deemed as an

important factor to any alliance theory, and nothing in this work indicates differently. What we do have is a situation where culture as such has been divided into smaller segments in order to try to discern if we can be more precise in what parts of culture have more or less importance when it comes to alliances.

1. In the first case of AssaAbloy and Cisco, there was a difference between the national cultures of Sweden and US, but the differences between organizational cultures were more important. This difference was not really surprising considering that AssaAbloy is the world's largest lock company and Cisco is the world's largest or second largest network provider. This means that the companies come with different organizational values as well as industrial cultures. It is not surprising considering that the IT industry is different from the security industry. I would argue that the more interesting aspect was that the differences in professional culture between the two companies were fewer than expected and certainly fewer than what can be seen between the physical security industry and the IT industry as a whole.

    I would argue that culture was important in this alliance, even though the respondents might not perceive it to be so. There was a cultural similarity between the professionals, but on all other levels it was not matching, and in the end the differences proved insurmountable. The alliance as such was discontinued, in part expectedly because of cultural differences on both organizational and industrial levels.

2. It was interesting to realize that even though this alliance represented the only all Swedish one, the cultures were quite different. About the only thing that was the same was the national cultures, but that is not a factor in the framework. Looking to the organizational culture, it is quite different since Niscayah comes from Securitas originally. Securitas is a pure security company, and despite the fact that Securitas systems focused more on integration and services, it is still a physical security company when it comes to the organizational culture it represents. Axis, however, is a print-server startup company at heart and that has defined their organizational culture. It is quite interesting to look at how two companies that are both active within the same industry actually have a difference in industrial culture. I

would portrait Niscayah as a product of the predominant security culture that exists within the physical security industry. Axis, on their hand, wants to be portrayed as a software company from the IT side. I would argue that this is erroneous since they are firmly ensconced in selling hardware, be that cameras or servers. This has created a corporate culture that has more in common with Cisco than with for instance Microsoft. This leaves us with the professional culture, and despite the fact that the companies are within the same business, they are quite different. Axis is represented by academics and technicians and Niscayah by a very strong heritage towards the physical security industry with former police and military professionals.

It is interesting to contemplate a bit on the total lack of similarities between culture on any level between the two organizations. This might be one of the key elements to why it has been so hard to get a functioning alliance to work.

3. No discussion was held on cultural differences when it came to Lenel and their alliances. We can only speculate on differences based on size, background and years in the business. In this instance that is not fruitful since the respondents did not deem culture to be an aspect that had bearing on their alliance work. This implies that as far as Lenel and its' partners are concerned, cultural issues are not important in their alliance work, but rather other factors which have been discussed.

4. Looking to the different cultural aspects within the ONVIF alliance, the overall thought is that the industrial cultures and company cultures of some of the partners are different. However on a professional level, the cultural differences seemed to be small. Starting with the industrial cultures, it is not surprising to see differences. Bosch, Panasonic and Siemens are huge conglomerates with business ties to most technical products and solutions. Sony on their hand is also a conglomerate, but they are more focused on electronics and optics than the three former partners. Finally we have Axis, which only focuses on IP cameras and print servers. It goes without saying that the organizational culture will differ between companies, especially when they are so very different in size and origins (both geographically and concerning age and background). The more

interesting aspect is that the professional culture between the individuals who work with ONVIF from the different companies is so similar despite all the other differences.

Today a lot more organizations are connected to ONVIF, and by default there are a number of different cultures associated with ONVIF. This has not perturbed the different partners, and this alliance around standards is stronger than ever.

End result of the alliances

I have tried to give a brief overview of my understanding of how the different organizations utilized the fact that they were in a number of alliances.

1. Even though there was no voiced *active* intent to learn from the alliance as such, it seemed as if AssaAbloy was very keen on learning as much as possible about network solutions form Cisco, and in part they succeeded since there are now products on the market utilizing this knowledge. This to me could indicate that the real purpose of the alliance was to develop products rather than actual knowledge and learning. On the other hand, AssaAbloy has no dedicated alliance function, but rather alliances are managed on an ad hoc basis, based on personal interest or contacts. The Cisco contacts that were involved in the project have largely left the company and have declined to comment on any learning process, but Cisco is not currently selling any of the jointly developed systems.

   This leaves us with a situation where knowledge was transferred in so much that productification happened. It is probable that learning took place since Assa Abloy is now producing their Hi-O products that work in different networks. It is even probable that Cisco learnt from this first alliance within the security industry since they are still active within the segment albeit with different partners and more often than not by acquisitions rather than alliances.
   In the end the companies parted ways to pursue their own objectives within the security realm, where AssaAbloy is now the sole provider of the Hi-O door systems but with new alliance partners. Regular

production has started up, but no large-scale commercial installations have been completed to date.

2. To date a lot of preliminary meetings and agendas have been set, but no formal alliance has been started. Niscayah in turn has expressed an interest in starting an IT "university" in order to train personnel in IT related matters on the American market. Axis has an ongoing alliance and training program with more than 800 application development partners worldwide and thousands of security installers. But to date Axis has not been able to create a strong enough case towards Niscayah in order to get them to commit to the Axis academy education sessions.

   Here I cannot argue that knowledge has transferred in any direction, and there is no evidence that learning has taken place outside of people going to different training sessions. There was never an official alliance in place, no joint intent and a lack of resources to actually follow through on a potential educational alliance. There was no sell through within the Niscayah organization for this venture and, as far as I have unearthed, no desire to specifically align with Axis in any sales and installation deals. The situation is further complicated by the ongoing discussion around direct sales, which has led to Niscayah selling fewer Axis cameras at present.

3. In the Lenel case no Alliance Learning Process was apparent. However their entire alliance program is geared towards productification, i.e. taking alliance partners' products and combining them with Lenel's products in order to offer some value to the customer. See for example Kevin "ET" Wine's (Lenel case) view on alliances.

   Lenel has installed dedicated functions in order to run its alliances since they are considered an important part of corporate strategy. HID uses Lenel's value added resellers to push more products and are not that interested in IT and openness. inFront is an IT company from the start and see alliances as a part of their corporate strategy. Alliances get their product integrated into company systems, be that through IT channels or Security channels. This alliance is the one that is currently functioning best.

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4. Even though the companies had no official learning process in place, specific individuals utilized their prior knowledge in alliance work in order to reduce the potential for mistakes in the ONVIF alliance. It can be argued that knowledge has been transferred since the standard is in place and more and more organizations are adhering to the ONVIF standard. This actually transcends the camera installers and has started to include other security products as well.

This means that the alliance is a success both in set up and in the fact that there are now both standards out there and a revised technological specification that more partners have been allowed to influence.

End result of Empirical work

My original expectation was that we were going to see a tremendous growth in both M&A and in alliance building. The fact is that, during the five years in which I have collected information, we have seen some acquisitions, but not nearly as many as was first envisioned in 2006 and even early 2007. There have been very few alliances of note published. The biggest ones are portrayed as cases in this work. The downturn of the economy in 2008 could of course be suspected to have some influencing effect on the rate and speed of acquisitions and also alliances, but at the same time most attendees of the 2008 as well as the 2009 Securing New Ground (SNG) conference were convinced that the downturn of the economy would speed up the convergence of the industry on all levels.

It is interesting to see that ICT yet again is transforming an industry, but in this case it is actually taking a bit longer than with for instance the banking and printing industry. According to industry experts such as Glen Greer of Assa Abloy, this is mostly due to how the security industry is set up, i.e. much diversified and very traditionalistic (these characteristics are non-conducive to fast change). That being said, we in the Lusax team have observed a significant change in IT/IP awareness in all players over the project years. The idea in 2006 was that IP would eventually make its presence felt within the community. In 2011 we had a situation in which traditional integrators were marketing remote monitoring, security as a service and discussing possible return on investment when analyzing IP and analogue systems. Furthermore there is a lot more talk of both Security as a service (SAAS) and how to define

value across the enterprise as a whole. The latter is becoming an issue since IT facilities and security infrastructure-features are merging. This has forced leaders to see how they can leverage their resources in order to offer broad organizational benefits that are measurable as Return on Investment (ROI).

It is quite safe to say that over the years the project has lasted, we have started to see a technology shift, and I would argue that the process of incorporating IT has really gotten under way. The development of new security products has started to speed up. New routines and ideas in manufacturing and customer service are also surfacing, and they all require new thinking and new knowledge. The easiest and most cost efficient way to achieve the new requirements of the market is by alliances. The industry needs to learn how to start, handle and terminate good alliances in order to meet the changing demands.

Analysis

In this chapter I continue to analyze the collected data and to what extent (if at all) it supports the preliminary theoretical framework, and if there are any new factors that need to be taken into consideration. First a summary of factors found under each heading are presented, then suggestions for modifications to the framework as well as possible implications they have are discussed.

Framework summary

The initial framework spanned over several theoretical views, where the idea was to use ideas found in Agency theory, Culture theory, Learning- and knowledge-theory, RBV and Transaction cost theory. In the theoretical chapter I go through these theories in some detail and leave the chapter with three main factors that I believe are worth considering further. Transfer capacity, Relationship governance and Cultural fit. These categories each have a number of sub-factors that from a theoretical perspective are deemed as crucial for alliance building. This segment will discuss what parts have been confirmed by the empirical material and what parts have not been mentioned or going by the material presented now take on lesser importance than in the original framework. The discussion will shed some light on what changes are needed to the preliminary framework.

Transfer Capacity

Characteristics of knowledge Transferred:
***Causal ambiguity*:** Recollecting the discussion on what dictates Absorptive capacity by Cohen and Levinthal (1990) and the discussion on Causal ambiguity by Szulanski (1996), the question becomes the following: What

characteristics and knowledge are we trying to transfer? It might appear to be a trivial point, but in actuality it can become opaque quickly by the very fact that we are discussing ICT. It is easy to fall into the trap of discussing what characteristics of ICT help with knowledge transfer as a list similar to that of Aral and Weill (2007). I argue that we need to understand what it is within that ICT capability that is hard to transfer and thus create causal ambiguity. The very fact that authors such as Szulanski (1996), Grant (1996b), Nonaka (1994) and Spender (1996a) argue that alliances as such are often done with tacit knowledge seems to indicate that a) we have tacit knowledge within alliance building as such, b) we are uncertain of what knowledge around ICT is hard to transfer and why, and c) there is ambiguity in general around the characteristics of the knowledge transfer. The fact that there is tacit knowledge associated to alliance building is neither new nor something that I will discuss here; suffice to know that this is so. The second point, i.e. that we are uncertain about what parts of the ICT capability are hard to transfer and why, is all the more interesting. Starting with what parts are hard to transfer, the empirical material in for instance the AssaAbloy case points to the security company wanting to use and in some instances learn about what Aral and Weill (2007) call IT assets, i.e. hardware. The transfer of knowledge in this particular case was almost accidental since the goal was to get a functioning product to market. Studying the Axis Niscayah case, the stated intent was that the security company wanted to learn about IT technology in general and IP cameras in particular. The empirical material showed that the interest was primarily towards getting better discounts on purchased camera hardware, and no transfer of knowledge took place. However it could be argued that an understanding of what can be done with IP cameras was transferred, which is a form of knowledge. Initial interviews, survey and cases highlight the importance of utilizing the tacit knowledge that is claimed to exist. However when trying to pinpoint this alleged tacitness, it is not immediately clear what is meant. One part is that you cannot learn ICT by just sitting in a school bench. There is a need to actually do hands on work, e.g. to acquire the ability to set up and configure servers and storage devises for surveillance. This you can learn on a theoretical base, but as all know who have tried to do this, there are a number of problems and issues that get resolved on the fly as set up is taking place. Another example where tacit knowledge is used is in the borderline between IT and security, in how to configure cameras. On the one hand you have security professionals who know about cameras and lenses, which is absolutely essential in order to get video that can be used. On the

other hand you need to know how to set up the IP camera on a network and configure it in order for it to use as little bandwidth and storage as possible. Both these skills are taught in different academies, but you can only really learn it by doing it and by assimilating redundant knowledge. This is something that Cohen and Levinthal (1990) discuss as the necessity to have richness of previous knowledge. Other authors such as Aral and Weill (2007) argue that we need to have "intensity" in our practical routines, i.e. we need to practice and use ICT in order to get good at it. This tells us that while Axis academies are important in order to gain what I would term starting knowledge, to really transfer the full knowledge of ICT, the users need to practice and use the equipment. It is needed in order to increase their IT maturity if you will, which has been described by Kalling (2009) as well as Kalling (2007a).

Having talked about what parts are hard to transfer, we move to why it is hard to transfer this knowledge. Some of the reasons why it is hard to transfer the knowledge reside in the factors (to be discussed forthright) under transfer capacity. However the actual characteristics of ICT as the proverbial "philosophers' stone", as I have alluded to before, makes the phenomenon intimidating and hard to grasp for a number of people. The best example to illustrate this point is to picture the 3-year-old who happily punches away at the i-pad without fear of breaking it, while a more mature new user reads the manual or ask for assistance in order to avoid doing anything wrong. What I am trying to illustrate is the inherent mystique of ICT as an entity; if you have no prior knowledge of the field, it can be very intimidating. There were indications from a number of interviews with IT professionals about the frustration of management not understanding what ICT can and cannot do. The key issue was that some pointed out that in order for transfer to take place, there needed to be at least some understanding on the recipient side of the knowledge being transferred. This in itself might be one defining characteristic of ICT; you need to have some knowledge of it on both sides of the transfer in order for knowledge transfer to take place.

> I have tried to get our organization to understand the need for both training of our own staff as well as the need to acquire knowledgeable staff, either by acquisition or by hiring them outright. It is very frustrating that nothing is happening. If nothing else, it would be great if your research could point to how we are missing the train … (Anonymous person within one of the partner companies)

The final point is about the potential ambiguity around the characteristics of the knowledge transferred as such. This point I would argue partly falls into the former point on why it is hard to transfer ICT knowledge. It could be argued that since causal ambiguity describes to what degree decision makers comprehend the relationship between organizational inputs and outputs in reference to the alliance and the transfer of knowledge, the first order of business needs to be to define what resources are put in place, what the results of the alliance are supposed to be and how they will be measured. It is needed in order to actually be able to say that there is a relationship with input and output that the organization can be uncertain of. This leaves us with no clear answer as to if there is causal ambiguity in the characteristics of knowledge transfer of ICT. What I mean with this is to ask the question, is ICT capability subject to causal ambiguity i.e. is it uncertain if this capability is good for the recipient of the knowledge. In the case of Niscayah there were individuals that had both ICT capability as well as absorptive capacity as discussed by Cohen and Levinthal (1990). What could be argued here was that these individuals, although they acted as interfaces towards e.g. Axis, they were too few. This created a situation were the interface was too narrow if you will and transfer could not take place so to me this implies that there is ambiguity and that it actually influences the transfer of knowledge.

Unproveness goes hand in hand with both the ambiguous nature of how alliances are handled within the industry and how ICT is being transferred. Having a proven solution and prior work experience is key in the physical security industry in order to even be invited to give tenders. What I specifically mean by this is that the security industry as such works with 99,9% uptime on their systems, where failure of for instance cameras is not acceptable. Recall the quote from Fredrik Nilsson of Axis on how much money a casino will lose every minute they have camera failure. The industry as such is focused on understanding threat scenarios, how to set up perimeters, configure cameras and locking systems. In short the industry has no interest in testing new things, but rather wants proven solutions, preferably by organizations and individuals who have already done a number of similar installations. This is to be compared to the IT industry, where Beta testing, Alfa testing and Acceptance testing are all part of the days work. Very seldom do you see software releases that are not followed by bug fixes. This means that on the one hand we have an industry that only wants proven solution, and on the other hand we have an industry that works with a "good enough" approach.

On a general basis the security industry would not accept unproven products or knowledge, but there is explicit knowledge in the IT industry that is needed within the security industry, e.g. concerning how to configure systems and getting different IP devices to work together. All in all both industries have knowledge that should be "easily" transferred to the other if there was a real drive and willingness to do so. What we have is a situation where transfer needs to take place although there is unprovenness. The case of for instance Assa Abloy points very strongly to the alliance taking place based on trust between individuals, where personal trust as well as professional trust drove the alliance forward in order to try something not previously proven.

Looking to how partners transfer knowledge is interesting in so much that it does not go against what for instance Becerra et al. (2008) argue. They advocate that transferring knowledge within alliances entails different forms of risk depending on the level tacitness of knowledge as well as the trustworthiness of the partners involved. I would argue that it is hard to be trustworthy if you are an unproven entity in your alliance partner's eyes. Surpassing the barrier of unprovenness, Becerra et al. (2008)argue for trust, and other authors such as Larsson et al. (1998) and Rottman (2008) argue that what is needed is an intent from the organization to learn and transfer knowledge. What has been used in the original framework is motivation on both the source and recipient of knowledge under transfer capacity as well as attitude under relationship governance, which I would argue all could be substituted for intent. This should point to alliances as a natural way of helping the organizations overcome some of the trepidation of going into the unknown of testing new systems and installations. In reality alliances to date have very seldom been set up to do this, but rather they were in place for sales and marketing reasons. The initial interviews showed no real incentive or drive for alliances in order to get to explicit knowledge, but rather there are a lot of general partnerships and sales/support programs. This indicates an immaturity of alliance set up to transfer knowledge, which has been described by Kale and Singh (2007) as well as Gulati (1999).

The interviews did support transfer of knowledge. Alliances were given as an example of how to do mutual product development in unproven markets, but in reality it was often a case where one producer would have hardware and the other software that had to work together. This of course is not a full joint development but rather some "light" version of a full alliance. This is interesting since it points to a fact that was mentioned already in the empirical

chapter, namely that not all alliances are used for the purpose to learn, but rather to use the alliance partner's specific knowledge of a product that you need to integrate with in order to your own product or a new joint product out on the market. This somewhat lukewarm view of alliances was supported by the survey, which clearly showed a need for formalization of the alliance work in order for it to succeed. This is supported by Simonin (2004) as well as Kale and Singh (2007) who argue for firms to develop specific alliance capabilities in order to succeed.

Closing out the discussion around unprovenness, there was evidence of companies being unwilling to go outside of the proven realms, meaning that there was very little exploratory action taking place. I am thinking of Assa Abloy and Cisco as one example as well as inFronts ventures to integrate with Lenel. There was some exploiting capacity in the usage of the alliance as a way of getting access to a customer base and finding new product ideas. Again we can look to Lenel's set up with alliance partners who joined the program with the explicit idea to sell more of their own product by association to Lenel's network. Similarly there was also evidence of using the alliance as a way to penetrate new sales channels and training/developing a sales force in general, which coincides with Davidson and Olfman (2004) argument around how alliances can help with absorptive capacity as well as intent to learn. The best example here is Axis and Niscayah, where Axis wanted to sell more cameras by training the Niscayah staff in order for them to be able to actually sell the IP cameras. Interestingly enough, many respondents voiced a belief that alliances should be used to create new products. Having the alliance as such will help alleviate some of the uncertainty of using unproven technology, i.e. when everyone works together, no one needs bear the full brunt of potential problems with the unproven products. This would indicate that the alliance as such acts as a form of trust generator that lowers the potential threat of unprovenness. I would argue that what this indicates is that companies actually are less interested in learning about what they do not know, or what is unproven, and more interested in how to use alliances as a may of integrating with partners' existing products.

ICT (as the medium by which transfer can occur). I am coming now to what I mean can turn the discussion opaque quickly. It would be convenient to just not discuss this part since we are also dealing with ICT capability as the part being transferred. However we also need to recognize that ICT is a vital part in how we transfer knowledge today, and therefore we need to at least

acknowledge this fact to a certain extent in the characteristics of the knowledge transfer. We need to ask ourselves how much of the transfer is taking place with the help of ICT and how much is taking place with the help of hands on training in classrooms and out practicing in the field? I do not want to dwell too much on this point, but during the empirical work it became apparent that firms in general do not think of their actual ICT capability as a specific entity that will help or hinder them in the transfer of knowledge. Rather they view IT, IS and ICT as the "IT assets" described by Aral and Weill (2007).

It was interesting to notice that despite any real technological fit between partners, as discussed by Corvello et al. (2013), we could still observe success, failure and knowledge transfer within the alliances. The theories advocate that ICT can help with knowledge transfer, but the interviews showed that ICT was not primarily thought of as a specific tool for helping transfer to take place within the alliance. This would indicate that we need to look to personal relations and interaction in different forms for answers, or have we just accepted e-mail and Skype as our everyday tools so they are no longer considered as specific to ICT?

Characteristics of source of knowledge:

The guiding factor is the extent of ***motivation* or *lack of motivation*** that resides with the source of the knowledge. In this case that means looking for what motivates the IT companies to work with the security companies, i.e. why they would want to transfer ICT knowledge or have an alliance in the first place? Naturally it is hard, or even foolish, to argue to know about individual knowledge of the respondents within this research, however I will endeavor to shed some light on individual thoughts on this subject as well as illustrate how the cases worked. It was interesting to notice the difference in attitude between the source and recipient of knowledge when it comes to motivation. But one aspect that was the same for both source and recipient was that where we had successful alliances, there were also individuals going outside of their traditional roles and responsibilities, i.e. being motivated (for some reason) to share their knowledge or to receive knowledge from others. This could be a case of what Gulati (1995a) calls the mutual hostage

situation[39], but it seems unlikely. The interviews pointed towards other motivational factors for the alliance partners. For Axis it was a two-fold strategy. First and foremost they wanted to sell more cameras, and in order to do this, the security companies need to both know about the product and understand it. But a second motive was actually to educate the security industry, not in some altruistic manner, but rather there was some thought that by reaching some critical mass of understanding of ICT and IP cameras in particular, the industry would eventually see the benefits with connecting all security related products to IP addresses. This is interesting since it comes close to Cohen and Levinthal's (1990) discussion around the need to have at least some knowledge in an area to recognize either a need to learn more or that you might lack the capacity to learn in the area. Without it you risk to find yourself in what they call a Lockout situation. This signifies that you have missed to invest early in absorptive capacity, and if you wish to develop a given level of knowledge at a later time, then it will cost you significantly more. Applied to ICT transfer, this means that if you get on early and learn about the technology, the cost in time, trial and error as well as actual monetary outlays will be smaller than if you want to transform at a later date.

Studying the ONVIF case, it was about creating a standard, which in years to come should lower production costs for all involved parties, and it was also about lowering educational costs for users since parts should become interchangeable. This creation of standards is one way of lowering uncertainty since even though you might not know the knowledge as such, you do know the standard and how it works. This of course also affects the source of knowledge since the source needs to do less special solutions in order have technology fit between products. The cases also clearly showed individuals that were very knowledgeable in their fields and showed a willingness to transfer knowledge as such. However, for any transfer to occur, there also had to be a recipient on the other end who was willing to learn and absorb the offered knowledge, which is also argued by Kalling and Styhre (2003) and (Kalling, 2007b).

Considering, as I have repeatedly argued, that the physical security industry as such is inherently skeptical to change, it is not surprising that it regularly

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[39] Gulati (1995a) argues that by creating a mutual hostage situation, often by shared equity, you get a situation where partners' interests align.

does *not perceive* many sources outside of its realm *as reliable.* This perceived unreliability is in part due to them being an unproven entity, i.e. in addition to not knowing about Axis, the products and technology they are representing, e.g. IP cameras, are an unproven entity with little or no track record. That being said there are alliances in place, as the cases have shown, and there are both successes and failures. The successes have had good knowledge to transfer, and more importantly, the relationships between the participants have worked. I think the best example of this is the AssaAbloy and Cisco case. What is interesting is that if we look to for instance Nonaka (1994) or O'Dwyer and O'Flynn (2005) who argues commitment from the individuals as the primary factor to create knowledge, this fits well with this case. More interestingly though is to look at the fact that many of the alliances have not created knowledge about as much as a learning around how the alliance partner's products can be used in order to create value. Inkpen (2000a) discusses this potential to use *"alliances as a specific learning context"* Inkpen (2000a:1037). An example of it is the Lenel partnership, where partners use the alliance to incorporate their products with Lenel products in order to get better sales traction. They might, or might not be, interested in transferring their knowledge to Lenel, but Lenel as the recipient is more interested in getting as many products affiliated and working with their own products than they are in learning about specific technology.

To me this indicates that in order to come to terms with any situation where the source of knowledge is perceived as unreliable, you need to have working relationship governance more than anything else. This is supported by Zollo et al. (2002), who argue the importance of interorganizaitonal routines with alliances, and by Rottman (2008), who argues that the source of knowledge needs to be perceived as knowledgeable of both what is being transferred and how to transfer that knowledge.

Characteristics of recipient of knowledge

Motivation or the *lack of motivation* was an original factor in the preliminary framework to consider in understanding recipients' ability to handle any knowledge transfer. Looking to the interviews, the discussion around commitment, i.e. motivation, was put in place to gauge how interviewees and companies value their commitment as well as motivation to alliances. The initial interviews showed that few companies seem to have an alliance infrastructure that could indicate any form of real commitment to learning

from alliances, which would almost automatically exclude them from being able to absorb knowledge according to Kalling and Styhre (2003). When discussing motivation, it is also interesting to discuss intent as one factor. Intent has been mentioned earlier in the theory and it was mentioned in interviews, and the question is if intent and motivation are the same for the respondents or not. To begin with there were interview instances where the individual knowledge almost seemed to work as a barrier to any form of transfer capacity in so much that individuals were unwilling to stray outside of known parameters. What I mean by this is that the recipient of knowledge was unwilling to actually try something unproven, which is a factor from the characteristics of knowledge transfer. This was illustrated as an unwillingness to try to work with the IT companies. One such example was voiced by a Niscayah employee who did not see the gains with Axis IP cameras but advocated the continued use of other venders with analogue or hybrid cameras.

What this lack of motivation came from is unclear, it might be an example of not wanting to work with unprovenness or it might just be a case of not wanting to stray outside of their comfort zone, something that has been discussed in part by Alvesson and Sveningsson (2003). Regardless of reason looking to for instance Simonin (2004), the learning intent is one key aspect for knowledge transfer to take place. This is further supported by O'Dwyer and O'Flynn (2005) who argue that it is the motivation, or intent, of the recipient that determines the ability to acquire knowledge. Going back to Cohen and Levinthal (1990), they also discuss reluctance to receive new knowledge under the "not-invented-here" syndrome as one variation of the lockout aspect mentioned under motivation for source of knowledge. This can be exemplified by one of the Pelco interviews where IP cameras were dismissed out of hand, since Pelco at the time produced all aspects of their analogue cameras in-house:

> IP has been a little niche market for the last 5 years where picture quality has been poor… somewhere into the future your network will probably be able to carry the bandwidth needed …, at one point in the future the digital cameras will be better than the analogue but at that point in time we will be ready. (Gerit Hurrencamp, Pelco)

Despite the fact that the survey showed few formal alliance programs, and that the cases showed a mix between formal and informal commitment of

resources towards alliances, I am still hesitant to say that there was a lack of motivation and what we need to focus on is if this motivation hindered or helped the transfer of knowledge. If we look to Lenel's partner program it would be quite easy to point to commitment and motivation within the program since there were both products and people in place that were direct results of the alliances and some knowledge must have been transferred due to this. Looking to Axis and Niscayah there was no formal alliance and no resources committed to the alliance, but some individuals interviewed clearly saw the alliance as something essential for future development, i.e. a way to acquire knowledge and learning. I would say that there was a lack of motivation in the upper levels of Niscayah to learn from Axis, which was a problem for the "interfaces" between the two organizations as I have mentioned previously. Overall there is still a general lack of a formal commitment to any specific learning agendas from the alliances studied. Furthermore all cases lacked clear goals attached to the alliances (unless sales oriented), which would indicate a situation where organizations run a clear risk of losing interest and motivation towards knowledge transfer, which is in line with what both Alvesson and Sveningsson (2003) as well as Park and Zhou (2005) argue. Hence it is reasonable to argue that lacking motivation on the recipient side will effect the transfer of knowledge negatively.

Absorptive capacity or the *lack thereof*: The initial interviews gave no indication of any knowledge or learning transfer taking place, which would of course indicate a total lack of absorptive capacity. In the interviews we can surmise that even though there appears to be a clear consensus that gaining knowledge is an important part of alliance work, it is also suggested that alliances as such are seen more as steering tools than a way to actually facilitate learning and knowledge sharing. This came out as a notion of alliances being formed in order to coordinate and control previously uncontrolled parts of the production chain, where alliances would create shared information – not to learn per se, but rather – to help create better end-user value.

Looking to the cases they indicate that their might be absorptive capacity in place, as with for instance the Assa Abloy and Cisco case, but there is a lack of consciously generated change even when transfer is taking place. Studying the Axis Niscayah case I would argue that no absorptive capacity was present on an overall level. What knowledge transfer there was happened on a few individuals. Looking to the survey it showed a clear consensus on the fact that gaining knowledge is an important objective for alliances. This at a glance

would indicate that learning would take place and absorptive capacity would ensue, if nothing else by the very fact that by having repeated alliances you accumulate a diversity of knowledge on alliances, which according to Cohen and Levinthal (1990) should increase your absorptive capacity. This might be true of the actual alliance capability as such, but looking to Simonin (1997), who argues that repeated alliances, or having experience with alliances, are not enough to absorb knowledge.

This relates to what we are looking for here, i.e. the transference of ICT knowledge. Looking to the Axis Niscayah case, it was done – at least on paper – in order to learn and absorb knowledge from partners, but it would seem that many security players may not have the actual capacity in place to transfer any knowledge or learning, indicating a possible lack of either absorptive or retentive capacity. As I have mentioned previously there was a lack of absorptive capacity in Niscayah, and I can only speculate what this would mean for retentive capacity. This can be traced to how they did not have permanent resources in place for the task of learning and knowledge sharing, which is in sync with Rothaermel and Deeds (2006). They claim that you need to build your capabilities by codifying routines, policies and procedures, i.e. by having resources in place that can absorb and retain knowledge. It would not be amiss to extrapolate here and think that in the cases where there are individuals in place that can think outside of their comfort zone (as discussed under individual knowledge), there can also be a larger degree of transfer capacity.

Trying to connect the absorptive capacity with specific capabilities of individuals is in line with Nonaka (1994) who argues for the importance of social interactions' ability to influence knowledge creation. In other words, if you have an ability to socially interact with others, then you also have the ability to receive or transfer knowledge. Generally speaking I would go so far as saying that as we see the security industry continuing to converge with the IT industry, we will see more knowledge sharing over former standards and demarcations, purely out of necessity to make all the systems work. This then will also allow for easier product collaboration since there will be standards on how devises connected to IP should work and communicate.

Retentive capacity: Requires that you have learning tools in place as discussed by Anand and Khanna (2000). The initial interviews showed that the IT companies as well as the security companies are very involved with continuous

improvement issues, which have proven good for retaining knowledge, but neither interviews, survey or even cases could really support the existence of any continuous improvement processes, which have been linked to retentive capacity. In the survey no attempts of measuring alliances or goals associated with alliances were observed, implicating that it would be hard for any firm to say anything definite on what knowledge they had transferred and retained since it was not being measured. The only exception would be Lenel's "Path to execution" which could be claimed to be a continuous improvement process, which the measuring process that implies. The more interesting question to ask at this point is if Lenel's "path to execution" helped them improve their retentive capacity or if in actuality they have no need to retain knowledge on alliance partners products but rather knowledge on how to work with them in order to productify? Overall though, I would claim that there was a low degree of retentive capacity for ICT knowledge.

The former statement is somewhat bewildering considering the interviews pointed to individuals' commitment to learning. However there was also a lack of support in the form of programs in place to handle learning and the retention of knowledge about ICT. The interviews gave little evidence of learning routines within the security companies, and what learning there was, was geared to learning about current hardware, e.g. Lenel's global education about Assa Abloy's entrance systems etc. From the theoretical perspective of for instance Simonin (1997) and Teece (2007) organizations must dispel prejudice against technology from the outside and increase their absorptive capacity through learning and skill accumulation, i.e. by raising the retentive capacity of the firm. Let us now look to the cases where there were some learning programs in place. More noticeable among them was Axis academy, even thought Axis as such is the source of knowledge the people who attend are often security companies. Axis academy is geared towards teaching about IP cameras. Here I would say that we could see retentive capacity in place. People graduated and later practiced what they learned in the academy so knowledge must have been transferred, atleast on the specific Axis cameras. In Lenel's case there were some instances where alliance partners did rethink complete strategies after aligning and transferring knowledge about Lenel and their other alliance partners products, which would indicate double loop learning. In the end the empirical material points towards retention of knowledge about products and use of products, rather than ICT per se.

Characteristics of the context

Barren Organizational Context indicates a relationship that hinders the gestation and evolution of transfers, in our case the transfer of knowledge through alliances. This can be done in any number of ways as the former segments have described and it can be done on both the source and recipient side of the alliance. What we are looking at here is if the context in which the organizations operate hinders the transfer in some way. The best example of this would be the Axis Niscayah case where the two organizations on a C level did not communicate and function smoothly. This could indicate a lack of intent, motivation or strategic fit. With that in mind it is somewhat bewildering to see how the industry as such has resources in place to do training, when considering what was shown previously about the commitment factor. Going by Gravier et al. (2008) and Rindfleisch and Moorman (2003), the fact that resources have been allocated to training should point to senior decision makers having invested interest in the transfer of knowledge, which in turn should ensure help to embed the alliance and create a more fertile organizational context. All of which are not indications of a barren organizational context. The fact that it "should" be this way is no guarantee as an alliance manager in a larger telecommunications company points out in Duysters et al. (2012).

> "40% of our job is selling to the alliance and 60% is actually selling alliances to the rest of my company" Duyster et al. (2012:3)

This same concern has been voiced by for instance Eric Michelsen of AssaAbloy who claims their hardest sell by far was internally.

The interviews points to the fact that the security industry puts a lot of resources into training on the products provided within the industry. This in it self would indicate an organizational context in which transfer should occur. Unfortunately, as has been shown earlier, the interviews also show that that the training is on existing products with no view on the horizon, i.e. no reasoning about what we are going to do with this training or how it can be utilized to increase sales. On example of this failure is the fact that Niscayah US wanted a training center to start building their understanding of what could be done with IP enabled products, but this was denied from headquarters. This on the other hand clearly illustrates a barren organizational context and this is the opposite of what Rindfleisch and Moorman (2003)

argue when they talk about the importance of senior managements help in embedding alliances. Furthermore a barren organizational context does not indicate a search for new knowledge, which Gulati (1998) discusses as a way to lower uncertainty. It does not streamline with Cohen and Levinthal's (1990) discussion either on how the development of an organization's absorptive capacity is built on prior investments in the development of its constituent and individuals' absorptive capacities. According to Cohen and Levinthal's (1990) the individuals need to be exposed to repeated learning experiences since learning is a cumulative process. What this implies is that in order to say that you a rich organizational context the organizations engaged in the alliance to transfer knowledge need to have repeated learning experiences together i.e. the meeting of minds where knowledge transfer takes place.

What we saw, however, was that some companies, e.g. Milestone and IBM, had dedicated resources for alliance building. Despite the fact that there were some companies that dedicated resources to alliances, none of the companies had specific resources in place to handle the converging of the markets that has been proven to take place. This would imply that there would be relationship breakdowns as the two industries start to merge. Looking to the convergence, transfer of knowledge between the two industries needed to take place in order to achieve more technological fit, as described by for instance Corvello et al. (2013). Where the empirical material clearly showed that no one thinks that alliances can work without committing resources to them, and yet very few are doing just that even though everyone also agrees that alliances are important. This clearly indicates a barren organizational context since not committing resources goes against what for instance Spender (1996b), and Spender (2012) argues, which is to provide employees with a context to work, learn and grow from.

Arduous relationships as a concept is very close to a barren organizational context. I would argue that both are also found to some degrees in relationship governance, which will be covered further on in the text. I mentioned in the theoretical chapter that I would argue that this thought can actually be applied on inter alliance relationships as well. According to Nonaka (1994) arduous relationships dominate any situation where tacit knowledge creates a need for more interaction in order to get a transfer of knowledge. This is interesting on two accounts. First, all the alliances that were problematic had arduous relationships, albeit to different levels. Second, the inherent idea of alliances

is to work together, which means that you need to work out differences. Both points are interesting since, as has been argued before, the security industry works to a large extent on trust, which in turn is built on social capital according to both Inkpen and Tsang (2005) and Rottman (2008). This then leads us to the more interesting aspect to consider, which is if there is an arduous relationship in this case, were the problems context based or just relationship based issues? We will return to the relationships' importance to alliances in the next section, but let us now ponder the notion of the arduous relationship. The first interviews did not discuss arduous relationships; this is probably due to those alliances failing and hence no longer exist. But looking to for instance the Assa Abloy and Cisco case, there was parts of the relationship that were hard and became worse before the alliance failed. This relationship breakdown, as described by Weiss and Visioni (2004) as well as Weiss et al. (2004), was in part due to an unwillingness to learn about the security industry from the Cisco side, and in part due to the fact that the market share envisioned by Cisco did not materialize. This in the end led to resources being pulled from the project and management focus being changed, creating stress on both sides for the people still involved with the alliance. The alliance finally was dismantled. Let us now turn to the Axis – Niscayah alliance, which was strained from the beginning since there was a mismatch of interest. I have described earlier that there was an official notion that Axis was supposed to help Niscayah learn about IP cameras to start with and ICT in general as time progressed. The problems started when Niscayah did not want to accept neither offered discounts nor the offered sales channels by Axis. It would appear that the factual reason for the alliance was to create a closer relationship, which would generate larger discounts and a direct distribution channel. This was not to be and it was a constant thorn in all dealings between the two organizations on a c-level.

Intent, as has been discussed previously, is an important factor to the success of any alliance. Looking to for example Nonaka (1994) and Simonin (2004), we find intent and commitment of resources as instrumental in order to have any learning occur. I would argue that part of having intent to learn is also to set in place routines and processes aimed at learning. Only a few of the interviewees discussed learning routines as something they practiced when it comes to alliances. The cases show differences between companies, where some, such as Lenel, had dedicated resources for alliances and hence had intent with their alliance. Some, such as Niscayah, did not have dedicated

resources towards alliances and did not show particular intent towards learning and knowledge transfer. Often having committed resources with a voiced intent were in junction with M&A and not with learning from and about alliances.

Looking to intent as a specific factor, teams as such might have an idea what they wanted to get out of an alliance, but no official learning program was in place. Niscayah wanted to set up specific learning teams, but nothing ever came out of it. This is unfortunate since according to von Hippel (1988), it is only from the people on the edges that the organization can really learn. Vision with no action seemed to be the norm. Some companies just do not seem to aspire to learn about their partners' business, and others feel they can just purchase what knowledge they need, without a need for learning it themselves. Axis has its academy, which is set to train about IP cameras and of course Axis products, and Lenel has its Global Education program. These examples indicate that there is intent present to transfer knowledge. However, it is not certain if this intent actually influenced the alliances. Studying for instance Simonin (2004), he argues that there needs to be learning intent for any transfer to take place. This is not completely in line with Hamel (1991) who argues that intent when it comes to alliances is the ability to see the potential value creation from the alliance, which should encompass strategic motivation, goals and objectives. By necessity strategic intent will evolve and change over time as the alliance partners and the industry they are in evolve. The discussion around fit has been mentioned before; Corvello et al. (2013) discuss the importance of technology fit and Douma et al. (2000) discuss the importance of fit between alliance partners when it comes to vision, values and strategies. It is interesting to note that in a recent article, Pérez et al. (2012) find support for the notion that alliance partners can have different value sets as described by Hamel (1991) and at the same time they can have asymmetric fits, contrary to what Douma et al. (2000) advocate. This indicats that the intent of the alliance does not have to be shared, but there needs to be intent in order for knowledge transfer to occur.

I would say that intent is a strong influencing factor towards the transfer of knowledge. Where we have observed upper management commitment and voiced intent towards an alliance we have also noticed transfer taking place.

Looking at the factors that have been said to make up transfer capacity, I would argue that we have seen some as stronger than others, which is quite

natural since the idea of the analysis is to describe, analyze and discuss what the empirical material provided. On top of this there were also a number of factors that could belong to transfer capacity, but that was not in the framework. What I would like to do now is to discuss the factors that were seemingly outside the framework. I believe that some of these apparent external factors are in fact different apparitions of the factors already in the framework, or possibly they describe the influencing forces that must exist between the three main factors of the model. At the end of each of the main factors I will list and discuss the identified factors that are outside of the preliminary framework but inside each subset, i.e. Transfer Capacity, Relationship Governance and Cultural fit. The latter two will be discussed at the end of their parts.

Purpose of learning: More often than not there seems to be a complete lack of assessment in and around the alliance process. This is a general observation that does not only apply to this study but on many, as has been argued by among others Culpan (2008), as well as Taylor (2005). The lack of assessment is not only evident in the actual go/no go for the alliance, but more so in the effects of how the alliance will potentially change the company or how a failed alliance could change current customers' views of the company. This also spills over to the question of why transfer of knowledge needs to take place at all. This might seem an arbitrary question, but in actuality this was voiced from Cohen and Levinthal (1990).

> A question remains as to whether absorptive capacity needs to be internally developed or to what extent a firm may simply buy it via, for example, hiring new personnel, contracting for consulting services, or even through corporate acquisitions. Cohen and Levinthal (1990:135)

The central thought for this thesis has to be if alliances as such can be used as a connection between two organizations in order to the knowledge of the one to be use by the other and hence alleviating the need for knowledge transfer in the first place. This then filters down to what knowledge is needed today and potentially in the future. It is in line with Dyer et al. (2001) who include both training and dedicated functions as important aspects to make alliances work, i.e. to infuse workers with the right knowledge in order to make the alliance work. Often an alliance strives to offer the customers other options than what the single firm could otherwise offer, either by joint development or by productifying on joint knowledge of each product line. It then requires

either joint programs to help support the customer or some form of training on the new products. This is in some parts supported by Simonin (2004), but he also advocates a need for an organizational culture that supports learning as well as intent to learn. Interestingly enough, he also includes knowledge ambiguity as an impediment, which to me indicates that having a purpose of training should possibly be put under *characteristics of knowledge transfer* and it could further be argued to be a part of the organizational context in which the company finds itself. That being said there have been studies by for instance Dyer et al. (2001), and Hatch and Dyer (2004) on successful alliances that point out a need to have focus on both why we train and learn as well as how we train and learn in order to better manage entered alliances. I would argue that understanding the purpose of learning falls under the characteristics of knowledge transferred.

Measurability and value add: Was discussed during interviews and it became clear by the survey that this was something important. Looking to the survey done it became quite clear that before starting any venture, alliance related or other, there is a need to define what will constitute success. If you have a moving target, then it is impossible to achieve success or measure it. Taking that into account, it is also important to understand that an alliance might end as an M&A, which has been mentioned a number of times in this work. The alliance as such is ended but it constitutes a success for the company at large.

The reason I reiterate the points above is that alliances often start out with only a vague idea of the end result, or even of how to cooperate, as has been illustrated in the empirical material. Furthermore the alliance often starts based on some form of personal relationship, and then the "internal" sell in starts, which has proven to be harder than most organizations envisioned. This is one reason why it is hard for companies to define when an alliance is successful. To know success you need something to measure against, and without a starting point and/or end point that is almost impossible. One aspect of measurability is control, which has been discussed extensively by among others Das and Teng (1998), as well as Das and Teng (2001). In both their papers they argue that one aspect of having functioning alliances is to understand control of the alliance, among other things to measure its success. The other part of their framework is trust, which in my model is a product of all the parts of Relationship Governance.

Looking to the object of study here, i.e. alliances that transfer knowledge, it becomes clear that it was hard for respondents to attach value and measurability. What constitutes a successful alliance varies. It varies looking to theory and it varies when you study answers from respondents. What is important for success for one is not so for the other, i.e. some would think that alliances that last over a long period of time and thereby give more time for transfer were successful, others the ones that generated great revenue and yet others the ones that offered knowhow. Looking to Cohen and Levinthal (1990) they even suggest that alliances might yield better results when it comes to innovation if they are shorter. This just illustrates the importance of deciding beforehand what should signify success in order for all involved to have something to measure and evaluate against.

In the end though I would argue that measurability and value add fall under intent of the alliance rather than under its own factor.

Relationship Governance

Before starting the discussion around the different factors that are contained within relationship governance I would like to briefly touch upon the fact that characteristics of context could arguably be part of relationship governance. For now I have chosen to let them stay in the same position as Szulanski first envisioned.

Juridical aspects and Agency It would seem as the successful alliances had legal matters sorted away before getting into an alliance. What I mean with this is that contracts that regulate the start, goals and potential finish of the alliance have been drafted, discussed and signed before work on the alliance commences. This in part would seem to contradict the discussion on measurability and value add since that by necessity would have to be regulated, at least in parts, by a functioning contract. One good example of this is the ONVIF case where a lot of effort was put into discussing rules, regulations and goals with the standard as well as the intended results of the standard. Before work started all founding members had signed Intellectual Property Rights contracts on top of the actual alliance contracts. On the other hand there were also examples of alliances done on pure trust between parties, e.g. Assa Abloy and Cisco started that way in some ways belying agency theory but more in line with what Noreen (1988) describes as self-constrained

behavior. He advocates that at least some varieties of ethical behavior exist, which reduces the opportunistic behavior described in agency theory.

One example of a situation-based alliance, not based on contracts but on relationship values, is the alliance between AssaAbloy and Cisco. Even though the alliance eventually failed, it still led to launched products that were the result of transferred knowledge. This alliance did not have that much in the way of legal contracts and binding documents on the alliance as such, but there was agency between the original controlling individuals of Assa Abloy and Cisco. What I mean with this was that Glen as well as Rick had agency within their own siloes as well as having their own friendship that created agency between the two. This then helped them and their respective organizations set up a functioning alliance in a very short time.

I have previously argued that it is important to have the legalities and structures taken care of early on in an alliance since a clearer playing field gives organizations more flexibility to maneuver. Even with contracts in place, there is a need for ethical responsibility with alliances. It reduces opportunistic behavior, which is in line with Daboub and Calton (2002) who argue for ethical behavior within alliances. Reuer and Ragozzino (2006) argue that joint ventures are one way to get to terms with agency hazards within alliances.

Going back to the theory; flexibility was regarded as an important factor from a theoretical perspective, but neither initial interviews nor survey supported this as a significant factor. On the one hand the propensity for companies to take risks in order to transfer knowledge within an alliance shows that we might not need formal contracts. Becerra et al. (2008) have discussed that the perceived trustworthiness of the partner sets the level of risk you are willing to accept. On the other hand some of the interviews also pointed to this flexibility of no contracts as a factor to failure of alliances, since the formality ensured that at least some rules and outcomes were agreed upon formally. The need to have formal contracts in order to learn from different stakeholders or alliance partners is something that Hill and Jones (1992) as well as Mayer and Teece (2008) discuss. When it comes to juridical aspects, I find it hard to argue fully in any direction but it is certain that neither the empirical material nor prior theory mention it to be a problem or even a hindrance. Looking to the material, organizations that have taken the time to do the legal work, e.g. ONVIF, seem to be happy about this in the end. The only negative thing voiced is that it often takes some time to put in place correctly, which might

not be something organizations are willing to wait for and hence we still see a lot of alliances built on trust and personal relationships.

Looking to *Agency* it would seem that many alliances are based on key individuals starting, handling and supporting the alliance. It seems obvious that you cannot have any agency without some personal relationships, since agency within alliances signifies the individuals' freedom to act within or outside of given parameters. The initial interviews showed that the security market is built squarely on longstanding relationships that transcend organizational and country barriers. In the interviews it was such a given factor that it was not even mentioned, but the survey showed personal relationships as a critical success factor in an alliance, which is in line with both Tomkins (2001) as well as (Gulati, 1995b). This means that in order for agency to appear, the IT companies need to build up their relations with the security industry as such. If they do not, then there is a greater need for contracts to be put in place. The cases studied show good relationships as key aspects, but they also show that in order to be successful you need to have formal contracts in place, which is supported by Mayer and Teece (2008). I think this is somewhat interesting since it could be observed that in the Lenel and ONVIF cases, where contracts and formality were in place, there was less discussions around personal relations and trust. Correspondingly, in the Axis – Niscayah and Assa Abloy and Cisco case where contracts were not prominent, there was a lot more focus on trust and personal relationships. Looking to the data I would advocate that relationships as well as formal contracts together are good for the alliance.

Furthering the thought on agency it also builds on social exchange. The interviews did not point to social exchanges per se, but if you look at the security industry's calendar of events you see: both a lot of large conferences and that each conference holds multiple social gatherings every day and night (often starting the day before the conference and going to the last day). This is something that the interviews support pointing to the fact that personal relationships, which are the starting point for agency, make for a lot of social gatherings within the industry. Neither the survey nor the cases touch upon this factor, but the importance of social exchange on agency is documented by among others DeTurk (2006) and Reuer (2006), and as mentioned earlier, the cases that had fewer or no contracts were also more focused on social exchange. What can be said is that social exchanges increases agency. A larger degree of agency alleviates some of the need for legal contracts since with

strong agency in place, shortcuts can be made. Of course the potential knowledge transfer without correct contracts in place can also be a risk. In the end I would view agency as the grease that makes the alliance run smoother, but it is not the fuel that sustains it in the long run.

Strategic Fit and Steering: There is often an issue of alliance partners having a hard time understanding each other since they do not have a common language. This common language has been discussed by among others Kale et al. (2000) and Weiss et al. (2004). In more recent times, Corvello et al. (2013) discuss a technology partner fit, where the technology knowledge within each firm is a central theme. Regardless of the specific fit we are discussing, trust or faith in the partner becomes important to avoid falling prey to opportunistic behavior (Kale et al., 2000).

The initial interviews showed that the IT industry and Security industry have very different "lenses" to interpret the environment they operate within, which indicates that there is less of a fit. Recall previous discussions on how new technology is released towards end-users. This opens for misinterpretations, and the interviews showed that the two parties on a general basis have had a hard time understanding each other. This is in line with how Hamel (1991) argues his point of partners' asymmetries in learning abilities, e.g. absorptive capacity.

During the Lusax project we have seen some indication that this is changing as the IP maturity rises. Assa Aloy, for instance, who in 2006 released their IP enabled doors with the help of Cisco, only to end the alliance with Cisco by 2010, nevertheless retained the knowledge and ability to produce network enabled security products. The survey pointed to an understanding on both sides that having common expectations is a critical success factor with the alliances, but were there is less strategic fit we also saw more steering. Look to ONVIF that from the beginning set out clear rules and steering committees in order to handle the different partners they were expecting to join. This was mirrored in the cases where it was evident that different goals also meant different ways of interpreting experiences. Consider for example Cisco and Assa Abloy. Assa Abloy was in actuality quite happy with the alliance in so much that they had managed to a) produce an IP enabled door, b) get this to market and c) transfer the knowledge of how to do this to the H-iO team. On the other hand Cisco was not at all happy with the alliance since they had envisioned to be number 1 or 2 in the security market quite rapidly by

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securing some key alliances and M&As. When this did not immediately happen, they lost interest and dismantled the alliance. This does not have to be a bad thing, as Huges and Weiss (2002) have pointed out. Differences can be just as helpful as hindering when it comes to alliance work. This would imply that not having a full strategic fit can be good for innovation as for instance Cohen and Levinthal (1990) have discussed it, but it still means more effort required to steer the alliance. This need for more steering realized itself in the cases studied as differences in both *What to communicate* and *How to communicate* and in some cases in *Who you communicated with.* All relate to how you steer your alliance. This was evident in so much that within the ONVIF program you had scheduled meetings, dedicated persons for different parts of the alliance as well as documented goals and ambitions with the alliance. Looking to Lenel, where there was a formal partnership, this was more of a one way street where partners were given directives and help in order to produce products that worked with Lenel products rather than transferring knowledge to Lenel.

I would argue that there was a lack of strategic fit in the cases and the interviews, but that does not mean that this is not an important factor. The alliances worked around this aspect of missing fit with the help of different steering tools such as trust, social capital and legal documents. It is probable that strategic fit had helped with making knowledge transfer easier, but transfer took place even when there was less of a fit. This actually seems to support Cohen and Levinthal's (1990) notion that there should be some overlap but not too much in order to support innovation.

Communication and ICT augmenting. Looking to communication and the possibility of ICT augmenting, there will often be a discussion about speed of transfer, which is a somewhat misleading concept since the security industry prides itself on doing things slow and meticulously. This fact was quite evident in the survey. The interviews clearly showed that the IT industry was very much into having high-speed knowledge transfers, where the Security industry did not state that they were slow, but rather talked about having secure ways of transferring anything with multiple redundancy backups etc. The survey did show that alliances increased both IT and Security companies' speed to market, which indicated a higher rate of knowledge transfer. This is completely in line with how Scott (2000) and Davidson and Olfman (2004) discuss both alliances and the use of technology. The cases, e.g. Assa Abloy who went from idea to finished product with the help of their alliance in

under 9 months, further supported the notion of alliances allowing for an increase of speed to market and greater market penetration. I would argue that this speed to market was actually due to strategic fit and steering, where the alliance organizations utilized their partner's inherent knowledge of their own product in order to either enhance their own portfolio or to build something together.

There was little data to support augmenting information and data with the help of alliances. The survey show that using technology, i.e. ICT, is critical in the support of alliance work. This is somewhat in line with Davenport and Prusak (1998) and Taylor and Williams (1994) who argue that using technology will increase the speed of knowledge transfer and that ICT as such is an enabler for change. But what we see from the security industry is that one on one conversations are very important. Furthermore in the cases only Lenel uses alliances in any capacity to enhance their current product line. They do this by allowing for more and/or better functionality with given information parameters. This could be described as being more in line with what Prahalad and Krishnan (2002) discuss, i.e. flexible alliances, which are responsive to change. Applying this thinking to the security industry you would use the alliance to create a more open system, such as ONVIF, that partners can utilize, and ultimately also use more of the information that is collated by a security system.

In this thesis I have pointed out that ICT can often be used as a catalyst for change, but the initial study only showed that ICT has not worked as the same sort of a catalyst for change as described by for instance Taylor and Williams (1994) and McFarlan (1990). When the Lusax program started in 2006, the general consensus was that the infusion of ICT into the security industry would speed up the convergence between the two markets. In some ways this has started to happen but not at the pace everybody foresaw. The cases indicate that alliances are seen as a prime way of leapfrogging to customers and quick sales. Lenel has this as a clear goal of the alliance, and it was definitely a thought from Cisco considering they terminated the alliance when they did not see the sales they had expected. The question is if it is the alliance or the technology that allows for the leapfrogging. In all probability it is a mix of the two, which I would argue is just what Afuah (2003) means when arguing that the Internet and ICT has changed the boundaries within which companies work. In any case there will be a need to learn about ICT sooner rather than later for the security players.

Using *communication* as a tool to increase knowledge transfer within the alliance would seem as a given. Considering that the security industry is centered on trust, relations and reliability, it stands to reason that multiple ways of communicating are used, i.e. ICT in several different ways. In all probability that is the case, but looking to the initial interviews, they only showed that ICT as a phenomenon is often discussed as a tool with which we can have different ways of communicating. The main factor in the interviews was personal communication in different forms, where e-mail, phone and meetings were discussed as being the norm. This is not contrary to what Davidsson and Olfsman (2004) argue since they show that ICT can increase alliance partners' receptivity by offering multiple channels of communication. They also point out that there is a need for face-to-face communication. The survey did not cover this, but the cases showed that it is important to have many channels of communication. E-mail, phone, webinar, wiki and skype were mentioned as possible channels. In reality it would seem as the respondents and companies in general almost take ICT communication in different channels as a given and that communication as such is the key aspect for transferring knowledge and getting the alliance to work.

Attitude/Intent is quite hard to measure and put value on, but one way of doing it is to see if resources have been committed to harness and use the alliance as such. In this case this means to see what resources had been put in place to facilitate knowledge transfer. During the interviews anytime the issue of resources came up, a discussion of intent also came up. Intent as such has been a factor. Intent is not unknown in the alliance literature and has been mentioned as an important factor by among others Doz and Hamel (1998) and Larsson (1992). As I have previously discussed, I would argue that in many instances when we talk about intent we also talk about motivation and attitude, which are both factors that are found in the framework. The cases showed that often resources are committed in the beginning of a project, but with lack of common intent and a common language to interpret what is happening, there is ample room for contention for the resources. This is exactly what happened in the Assa Abloy and Cisco case. Since a product had to come to market quickly, there were ample resources in the startup phase, but as time wore on, contention internally – at least on Cisco's side – led to less and less resources being committed to the alliance. The removal, on Cisco's side, of key individuals with both agency and social capital invested meant that the alliance slowly imploded. This is in line with Honohan and

Visioni (2002) who argue that companies need to commit both resources and social relations in order to have a successful alliance. In the long run resources tend to be taken away in this sort of an environment. It is also interesting that in neither survey nor interviews, resources were mentioned as such, but rather commitment and intent. It is remarkable considering that "lack of resources" is an important factor that has been identified by Bronder and Pritzl (1992) as well as Lorange and Roos (1993) in order to have successful alliances.

The interviewees discussed the level of commitment as a difference in the willingness to adapt and accept changes to the alliance and the environment in which they operate. I think this is a very interesting remark in so much that the respondents actually talk about context as well as motivation and attitude in the same train of though. Again the survey both supported the interviews and gave some new insight. It pointed to how operational and middle-management involvement in the alliance is a critical success factor. The Assa Abloy case for one, showed that companies need dedicated resources to handle their relationships, not only committed employees, and this is in line with the claims of a number of authors, e.g. Doz and Hamel (1998), Kale et al. (2002) and Kliman and Visioni (2002). This clearly shows that it is not enough to have a couple of driving champions within the company. What the cases show is that when there is commitment to alliances all through the organization, "throttling" this commitment so it lasts through the complete lifecycle of the alliance becomes the next challenge.

Trust is the final factor within relationship governance and it is viewed as a product of the other factors in relationship governance. Trust, as it turns out, is an often-discussed alliance factor. The initial interviews clearly showed that a high level of trust is inherent in the security industries product portfolio. Furthermore the interviews pointed to alliances often being based on trust, which could indicate a great deal of flexibility built into that trust. The trusting issue also indicated lesser need for formal contracts and arrangements to exchange information in formal settings, which both the AssaAbloy and Niscayah case proved to some extent. I have discusses trust as an important factor for alliance success based on authors such as Scott (2000), and Das and Teng (2001) but what I think previous studies have missed is how trust seems to encompass all parts of relationship governance.

On example of how trust encompasses many parts was how the interviews pointed to alliances being formed based first and foremost on personal trust

between individuals and second on company potential or strategic fit. This propensity to see the personal relation as insurance for lower potential transaction costs seems to be in keeping with what among others Park and Ungson (1997) and Judge and Dooley (2006) advocate. Judge and Dooley (ibid) argue that trustworthiness as well as contractual safeguards is what lowers opportunistic behavior and better performing alliances also had less problems with opportunistic behavior.

The survey clearly showed that trust is seen as a critical success factor for any alliance success, as has been mentioned previously. It also showed that formalism, i.e. contracts, had an important role to play. The cases also describe how many alliances are based on trust. Recall Eric Michelen and Glen Greer talking about trust as a key ingredient for the Assa Abloy case and Trygve Kolstad for the Niscayah case.

Both survey and cases are in line with what the theories hold as true, i.e. that trust can help to overcome potential problems that formal rules and regulations cannot (Rottman, 2008, Smircich, 1983). Examples of how alliance work and the actual transfer of knowledge runs more smoothly with trust in place abound. This is interesting since I have previously argued that we need both formalism and structure to alliances in order for them to be successful. I have also voiced concern that too much formalism can actually be detrimental to the success of the alliance. This has been described by Inkpen and Tsang (2005) and Doney et al. (1998) who argue that trust can be viewed as a set of beliefs and expectations that can help to moderate the cognitive process.

I would argue that we need to find a strategy that allows for formalism in order to set the parameters, and then uses trust as a flexible tool in order to let the alliance be as creative and free flowing as possible, i.e. that allows for transfer of knowledge and information. This is actually akin to the discussion on characteristics of context that ended the discussion on transfer capacity, where we could say that by knowing the context in which we work, setting the legal parameters and having a relationship based on trust the alliance has a better chance to succeed. In closing I think it is fair to say that even though trust starts the alliance, it is contracts, openness and accountability that sustains it.

Just as with transfer capacity, I have found factors outside of theoretical factors envisioned that I would like to discuss at this point.

Goals and sell through Often alliance projects start at the top-end of the companies, as has been described both in the literature as well as the empirical material. A decision is made to interact, with one or many lofty goals set. Just as often there is a lack of sell through of the idea and values behind the alliance within the companies involved, resulting in an adverse feeling towards the project which often results in failure (DeMan and Duysters, 2009, Draulans et al., 2003) This was illustrated by Eric Michelsen of Assa Abloy who claimed that the hardest sell of all was internally in order to get the alliance to work. All information gets distorted over time. That in turns means there is an inherent need for feedback loops as well as filters of different forms if we want to retain the essence of messages conveyed to us. One example of this is the ONVIF alliance that was started with three clear goals in mind: Standardization, Interoperability and Openness. Two instrumental parts in making this work was first to have a functioning communication infrastructure in place and second a way of ensuring multiple ways of communication in order to ensure the partners had and could retain good relations. The opposite of this situation is the Axis and Niscayah case where there was no clear goal that both partners could agree upon.

Due to distortion it is important to sustain a dialogue about partners' work and goals within the own organization. It raises trust and lowers barriers for knowledge sharing (Becerra, 2008, Pierce, 2008). Having established routines for handling and communication around alliances helps with sell-through but such routines are rare within the security realm.

> The emotional sell in is just as important as the being able to show positive numbers. (Åsa Christiander, Assa Abloy)

This means that we have an issue of *Relationship Governance* since we need to connect steering, communication as well as attitude to match those of projected Goals. This, in turn, needs to be followed by sell through, which could be labeled as a form of coordination of the relationship that controls the alliances. This is discussed by Gulati et al. (2012) as well as Kumar and Nathwani (2012)as important for alliance success. But what this tells us is also that goals and sell through are parts of communication as well as steering and do not have to be a factor of their own.

Cultural fit

Looking to culture and its implications for alliances there are a number of alliance authors who have worked with this as has been shown in the theoretical chapter. What I have tried to do here is get both an overall understanding of how culture influences alliances, but also to study how different cultures behave differently within the alliance context.

Professional culture. The initial interviews showed that there were cultural differences between the two industries. The physical security industry is fragmented and traditional in its thinking, and the IT industry is often heralded as a game changing industry which strongly shows that it has a culture that transcends over different cultures. This means that ICT has turned our world into an ever-increasing network of interconnected organizations, governments, schools and individuals (Omae and Ismail, 2011). The notion that the IT industry could transcend cultures is in line with what Avgerou (2010) argues in her discussion of how both culture and ICT needs to be constantly changing. The interviews continued to support dissimilarities between the industries with ample evidence that there are differences in culture as to how to run a security company and how to run an IT company, see e.g. the quote by Dan Dunkel. This is not that surprising considering the average background of the people who make up the organizations within each silo. It has been argued before that on average the IT companies have more academics, or technicians within their ranks and the security industry has more ex police and military within their ranks and it would be more remarkable if they had the same professional culture. The more interesting aspect of this is of course to understand how these differences in culture will influence the transfer of knowledge.

The survey showed that it is very important to have an open learning culture with common expectations if you are to succeed with your alliances as such as well as have any chance of transferring knowledge, which is in line with both Clegg et al. (2002) and Sirmon and Lane (2004). What this means is that the culture of the organization can work adversely to both the alliance but also hinder the transfer of knowledge, what comes immediately to mind is the not invented here mentality that has been described previously. This all indicates that understanding the professional culture is an important factor in order to have a successful alliance with knowledge transfer, and it supports Fernández et al. (2010) who argue that both the professional culture and the

organizational culture will impact any possible business transformation. The cases clearly showed that working with people who have the same professional background is more important than having similar organizational cultures. The best example of this is Assa Abloy and Cisco in my opinion. There we saw very different organizational cultures working together because the matching professional culture[40] of the parties. On top of this we saw a learning culture taking place – at least within AssaAbloy – during the alliance. This would support Sirmon and Lanes's (2004) claim that professional culture cuts through organizational boundaries. To further exemplify this let us look at how Assa Abloy chose to work with an outside alliance partner i.e. AMT instead of using HiD . This alliance was made external because it was believed that HiD different professional culture as well as organizational culture than the department seeking a specific alliance. The externalization could also be explained by Hofstede's (1984) argument around cultural differences as a barrier to change, i.e. if you have a barrier you seek another way forward and hence you go outside the own company to find an alliance partner.

Organizational culture. Whereas the security industry as such has been argued to be homogeneous in organizational culture, we can generally see more diversity within the IT culture. What the interviews showed is that there is a serious lack of understanding of how the other industry works, both from IT and Security. It is somewhat surprising if we are to believe Leidner (2010) who argues that ICT is a phenomenon that plays an important role in cultural imperialism, precluding any industry from operating in the proverbial bubble. This lack of understanding actually indicates that each industry works in its own bubble, and this further iterates the points made around motivation as well as attitude or intent, i.e. there is an apparent absence of any catalyst for behavior change.

This is somewhat surprising I think, and not fully clear to me. Looking at a quote from Milestone:

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[40] Here I am not talking about people being professional per se, but rather that they have the same profession. E.g. being an electrical engineer or IT professional rather than a person working in an IT company or a security company.

> Sales are the most important thing for a company that tries to grow organically. The synergies of sales and sales channels is what controls alliances for us. (Henrik Friborg, Milestone)

Just by looking at this very sales focused thought around alliances I would argue that this alliance is all about being a catalyst and in order for the sales alliances to work, there needs to be both an understanding of how the other company works and a willingness to try to adopt the own product line to work with the partner's line. What this means is that there needs to be a culture of both learning as well as knowledge sharing in order for the alliance to succeed and transfer of knowledge to occur.

Considering that the survey shows that culture as such (the survey did not cover all three cultures) plays an important part in alliance success, it would seem strange that organizations do not put more effort into figuring out how cultural issues affect them. This inability to act is discussed by Bettis and Prahalad (1995) as an inability to change despite clear evidence of change in adjacent environments. This could also be argued as the situation that Cohen and Levinthal (1990) described as the lockout, where your inability to see what is needed hinders you from taking action. The cases pointed in the direction that the companies in general had some notion of the fact that cultural differences could have an impact on their alliance work. Looking to Åsa Kristiansen of Assa Abloy she was very clear on how she had to work with cultural differences with here alliance partners, but wen studying Assa Abloy's policy documents it is clear that the culture they are concerned with is streamlining internal culture and not how to work with other cultures.

But from saying that there was a need for mutual understanding to openly admitting that there was a general lack of common understanding of each others culture, something Clegg et al. (2002) term shared practical consciousness, there is a long step. There is one quote from the cases that actually highlight this problem or phenomenon:

> I whish you would tell my upper management that we cannot function as things are now. I have no personnel that understand the IT industry and I cannot get management to give me resources to get there. In short we do not understand them, they do not understand us and there is no joint platform to move forward on. (Anonymous person within Niscayah)

There was agreement on the fact that having an organizational culture that accepts the change that the alliance means is important to succeed, see e.g. the quote above from Niscayah. It was also recognized that alliances can work on a professional level but still fail on an organizational one, e.g. the Assa Abloy and Cisco alliance, which is much in line with how Sirmon and Lane (2004) argue that professional culture supersedes all other cultures. Despite recognizing that professional culture is important, it would be amiss to think that organizational culture is not important to the alliance and knowledge transfer. Going back to Cohen and Levinthal (1990), they argue that absorptive capacity is not only about how the organizations interface with the outside world, but also how information and ideas are allowed to move around subunits of the organizations. This means that the character or culture of the organization will in some ways dictate how information can be transferred internally as well as externally. Looking to for instance Niscayah, there were individuals who clearly wanted to learn and set up knowledge transfer between the IT industry at large and their own organization. One example is how Franco Van Heijningen tried to set up an educational center in Atlanta that would cater to teaching security professionals about ICT as well as about Niscayah's products, for various reasons this was never to materialize chief among them was the lack of support from headquarters. This I would advocate is an example of individuals striving to learn where the culture of the organizations actively works against it. It might be unfair to say that the organizational culture bears full responsibility since there is also an industrial culture to take into account.

Industrial culture. There are strong, I would go as far as to say very strong, norms in place for the security industry. The initial interviews indicate an industry that is rigid in its way of thinking due to these cultural norms. Going by Fernández et al. (2010) this should be a strong influence in both how alliances are conducted and how the industry itself can and will be transformed. Daboub (2002) gives some support to this when arguing that we need more flexible organizations in order to have better interaction on a personal as well as organizational level. This on the other hand would indicate that the industry as such is ideal, considering that so many alliances are done on personal trust. Personal trust, as I have argued previously, is one way of achieving flexibility within an alliance.

If we are to talk about norms and regulations, I would advocate that we are in actuality talking about values, which has been done in reference to culture by

among others Daboub and Calton (2002), Doney et al. (1998), Hofstede (1983). The cases illustrated that there are different norms on what is shared between security and IT, concerning the depth and volume of what you share with an alliance partner. Think here on the difference between the ONVIF alliance with strong legal documents in place that allowed members to share specified information within the group. Then picture the Axis – Niscayah alliance, where there was very little sharing of anything. There were also some indications on different norms of what is shared in different national cultures, which will be discussed momentarily. The discussion around norms and cultures falls close to Leidner's (2010) discourse around cultural imperialism where ICT is seen as both the product and enabler for cultural exchange. I think this gets us back to the original thought of the thesis, which is to see if alliances can help to increase ICT capabilities. However in actuality, it might be the question about which came first, the chicken or the egg?

The only case company that has norms and values in place to handle – or foster – alliance building is Lenel, and even so they do not have specific ICT tools for this but rather dedicated resources that enables the alliances to function i.e. one on one interaction rather than webpages and intranets as such. Looking to industry values it is remarkable how homogenous the security industry is. Without putting any values into the observation, I can exemplify by stating that no security conference – at least in the USA – starts without pledging allegiance to the flag. Here the industry value is that of strong patriotism towards the home country. This is not a bad thing from any perspective. In actuality the interviews all showed that the security industry has been very stable over the last decades, which has ensured that very homogenous values have both emerged and been kept in place. It is hard to argue against this, when the industry during the last 15 year period has enjoyed very stable growth. Even so I would still argue that this is one example where ICT could work as an enabler of information and learning exchange in something Leidner (2010) would term an isolated market. The cases contribution to the value discussion is that values in some ways can be attributed to different cultures be that industrial, organizational or professional. Just because the market has had good growth does not mean it could not be better or that ICT could not help to keep the level up.

Finally I would also argue that the environment in which the alliance works will have an effect on whatever culture(s) is at play within the alliance. This

means that both Transfer capacity and more importantly Relationship governance will be influencing factors on culture.

Closing out the discussion on cultural issues I would like to discuss one factor that was discussed outside of the original framework.

National Culture: In all the cases examined, culture has played a role to some extent. For AssaAbloy and Cisco it was a major part of both what made the initial team a success and what finally broke the camel's hump when management changed focus. It was also interesting to notice that HiD, which is a fully owned company of Assa Abloy, was not invited to participate in the alliance with Cisco. The reasons for this are opaque, but an educated guess is that there was concern that the professional as well as national cultures between Assa Abloy and HiD would not work. In the ONVIF case a similarity in culture helped streamline the infrastructural aspects as well as formal contracts between partners. Looking to Cohen and Levinthal (1990) they discuss the importance of culture when it comes to shaping organizational absorptive capacity. One example they use is the Japanese practice of rotation of R&D personnel through the organization with the objective of creating knowledge overlap. This culture understands that breadth of knowledge needs to supersede the need for effective organizations.

Theoretically, national culture has been shown to be an important alliance factor by authors such as Doney et al. (1998), Park and Ungson (1997), Pothukuchi et al. (2002), Sirmon and Lane (2004). When going through the theory to build the framework, I argued that most articles that deal specifically with national culture as a factor within alliance theory are older. Looking to the empirical study, it only gave an indication of this on a case-by-case basis. There were some indications of differences between national cultures, at least when it comes to norms and values, as has been mentioned above. There was some discussion during the interviews on whether or not there could be national cultural differences within the same company. Most of the theory on national culture is, as stated previously, older with much being more than 10 years old, see e.g. Brown et al., 1989, Child et al., 1992, Park and Ungson, 1997, Parkhe, 1991, Bleeke and Ernst, 1995, which means that it was conceived before the internet revolution. Two exceptions to this would be Sirmon and Lane (2006) and Rottman (2008).

Today we have a greater mix of national cultures in our everyday communication and work environment. It is nevertheless important to raise

this issue since it was identified as a factor outside of the framework. I hold to the idea that any national culture can probably be found within both the organizational culture and the industrial culture if you choose to study this on a granularity that encompassed countries as well.

Closing out the discussion on culture I would argue that even though culture has been shown to be a great influence, there are still factors such as organizational context, arduous relationship as well as agency, attitude and trust that will influence the alliance in ways that could possibly also influence different cultural aspects. I do not feel confortable in saying that knowledge transfer can take place despite cultural differences, but I will go as far as to say that other factors can help to mitigate adverse effects of cultural differences.

New Framework

During this thesis work the focus has been on using alliances in order to obtain ICT capabilities. I have gone through a number of factors that I have theoretically shown could be of importance. As is often the case, reality does not conform to our theoretical models, resulting in changes to the model that in turn can be confirmed or refuted. I will now endeavor to discuss the different parts of my final framework.

During the analysis I have discussed factors that are connected with each segment previously identified from the theory as being important. At the end of each segment, i.e. Transfer Capacity, Relationship Governance and Culture, I have also had shorter discussions around factors that have been mentioned in the empirical material, but that did not fit seamlessly into the proposed framework, at least not without first having discussed it. One insight that came quite quickly was that all the residual factors were geared towards operations and management and not towards learning and knowledge transfer effects or actual resource utilization, which has been theorized to matter. The new factors that I have discussed at the end of each segment I have reasoned bordered and intermingled with the preliminary framework. This was done as a starting point for the new framework, but at the end of this work this still left me with some thoughts that had emerged during the work with the empirical material as well as the analysis. In these following segments I will discuss the factors that form the new model.

Transfer Capacity

Characteristics of knowledge Transferred

Studying the six empirical summaries in table-format, we could argue that neither *causal ambiguity* nor unprovenness are of that much importance in knowledge transfers. They have only been mentioned as important one and two times respectively. Looking to the analysis in the previous chapter, we see that I argue that this would be erroneous considering that there is ample evidence from authors such as Alvesson and Sveningsson (2003), Anand and Khanna (2000), Simonin (2004), Szulanski (1996) showing that ambiguity is a key dimension in complex organizations. It handles complex problems or even complex relations, which could include alliances. The problem or challenge that has emerged numerous times during this work is that ICT in itself is ambiguous. Therefore the transfer of knowledge around it is ambiguous in nature when it comes to what characteristics of knowledge we are supposed to be able to transfer. This is not to be confused with unprovenness, which in this instance refers to the different views on unproven knowledge between the recipient and source. They need to be recognized as a potential barrier to knowledge transfer. ICT as a medium of transferring knowledge on is also an important factor to take into consideration when looking at the overall characteristics of knowledge transfer. During the analysis, I also showed that it was important to understand the purpose or learning, i.e. the other end of knowledge transfer, in order to succeed. This purpose could be argued to only exist on the recipient side, but the interviews suggested that it is an important factor in the overall characteristics for transfer to occur.

This leaves us with four characteristics to consider around knowledge transfer as such.

Transfer Capacity
Characteristics of knowledge transferred
-   Causal ambiguity
-   Unprovenness
-   ICT
-   Purpose of learning

Characteristics of source of knowledge

This segment discusses motivation and reliability of the source of knowledge, but it was also interesting to see the impact that the individuals had on the results. Whether it be a reluctance to stray outside of individual comfort zones, as described by Alvesson and Sveningsson (2003), or a mismatch between recipient and source, as discussed by for instance Kalling (2007). The key aspect from the empirical work showed that individuals' commitment to the alliance was instrumental in the success stories. The issue of non-reliability was such that no alliances were struck outside of what would be considered a reliable partner. This is something I have argued is an intrinsic value of the security industry as such where it would be inconceivable to work with an unreliable source. The end result was that both factors were confirmed.

Transfer Capacity
Characteristics of knowledge transferred
-   Causal ambiguity
-   Unprovenness
-   ICT
-   Purpose of learning
Characteristics of the source of knowledge
-   Motivation
-   Reliablility

Characteristics of recipient of knowledge

In the analysis I argued that *motivation* was somewhat weak since there were few formal commitments towards learning and knowledge sharing. Such commitments are one prerequisite for being able to share knowledge according to among others Kalling och Styhre (2003). That being said, I would still argue that there were a number of motivated individuals who could possible receive knowledge. There was a clear lack of formal commitment to learning agendas, but there were other goals attached to the alliance, often sales oriented. I would go as far as to say that the motivation that was in place was focused towards learning how to use different technology. This brings us to *absorptive capacity*. The fact that there was no indication in the interviews

that would suggest knowledge transfer taking place would indicate a lack of absorptive capacity. I think that would be to simplify matters greatly. The interviews pointed towards alliances being seen more as a steering tool than a way to transfer knowledge, but the cases clearly showed that many alliances were set up to absorb knowledge from alliance partners, albeit with varying success. One reason for this apparent lack of absorptive capacity – I would argue – is because of a lack of routines, policies and procedures by which knowledge can be both absorbed and retained, which is also supported by for instance Rothaeel and Deeds (2006). Even though there was a certain lack of apparent absorptive capacity, I argue that it is important in order to have transfer of knowledge. The studied industry will see more knowledge sharing as the industry converges, which in turn will drive a need to form standards that all can adhere to. *Retentive capacity* as I mentioned earlier is very much connected to absorptive capacity. Teece (2007) advocates that firms need to embrace technology change and increase their absorptive capacity by accumulating skills, which translates to increasing the retentive capacity. I would argue that the cases pointed towards some learning programs being in place. Despite the fact that both absorptive capacity and retentive capacity were shown to be somewhat lacking by the analysis, I still hold to Szulanski's framework as being valid in this part.

Transfer Capacity
Characteristics of knowledge transferred
- Causal ambiguity
- Unprovenness
- ICT
- Purpose of learning
Characteristics of the source of knowledge
- Motivation
- Reliablility
Characteristics of the recipient of knowledge
- Motivation
- Absorptive capacity
- Retentive capacity

Characteristics of the context

The final part of Transfer capacity was not easy to handle from the empirical perspective. The six summaries of data clearly showed that only the *organizational context* was of importance. The fact that there was less support for *arduous relationships* I would attest to the second part of the framework, which is focused solely on relationship governance as well as the fact that much of an arduous relationship falls under or into the barren organizational context. Staying with the organizational context it was remarkable to see that there were large resources put in place for training on existing products This in itself should have pointed to what Aral and Weill (2007) and Graveri et al. (2008) term senior management championing. This championing did not seem to be evident since it was attested by both theory and empirical work, the hardest sell of all for an alliance can be internally. The cases showed differences between the companies when it comes to organizational context, but it would seem uncontestable to not include this factor. As Spender (2012) argues you need to provide employees with a context from which they can both work, grow and learn. One of the new factors that came up was *the environment in which the alliance* operates. In the first analysis of this, I argued that this should be a separate heading, but after more consideration I think that the key elements from the interviews relate to the converging security market where people are worried about their ability to manage outside expectations as described by Dickson and Weaver (1997). From my perspective this still falls under organizational context.

Looking to *Intent* I would say that I was somewhat reluctant at first to put it in the contextual box. Most of the "intent" discussed and described within the alliance literature to me falls under different forms of motivation as described in the entire vertical of Transfer Capacity. More interestingly though is a discussion that comes up already in the title of Kumar and Nathwani's (2012) paper: …*managerial thinking and biases determine success*. Kumar and Nathwani (2012) describe situations where the alliance manager typically has to make a range of decisions both on how to enter into an alliance and on how to manage one. In order to do this in an efficient manner, you need to be clear on what your intent with said alliance is. Das and Kumar (2011) as well as Kumar and Nathwani (2012) describe this from a sociocognitive angle where the key issue is why the organization has an alliance in the first place. Is it to achieve positive outcomes or to avoid negative outcomes? The empirical material shows that there are different intents with

the alliances as such, and in the analysis I allude to the fact that the intent with the alliance might not be towards learning or knowledge sharing. Instead the firms use alliances as a tool to harvest the potential out of joining different products. This brings my discussion in a full circle since I would argue that this is exactly what we see happening in technology alliances. There the alliance is about getting a product to market in the most efficient way possible, which often means that you just use your partner's knowledge rather than incorporating it into your own organization. I would claim that it is within this process that capabilities are won and potentially lost. The companies can develop an alliance capability as well as a capability to use partners' technology to their own needs. I would further argue that one possible byproduct of this is to actually learn and transfer knowledge about the product being used, but that is seldom neither aim nor intent for the alliance. This argument would seem to be supported by Lichtenthaler (2008) who argue that firms need to have relative capacity.

Looking to *technology shift* as one new factor that the analysis brought forward, I would argue that the discussion around convergence and the need for an ability to manage these projects (Pérez et al. 2012), could just as easily be put into the ICT factor of the characteristics of knowledge transfer. As I have previously discussed Aral and Weill (2007) show that having a stronger ICT knowledge throughout the organization will help the firm create a ICT capability as:

> "… mutually reinforcing system of practices and competencies … " Aral and Weill (2007:777).

Coupled to Corvello et al. (2013) who argue that there is a need to at least be aware of strategic fit between partners, I think it is reasonable to claim that the technology shift is covered with ICT factors under Transfer capacity, under strategic fit and ICT under relationship governance. Finally there is the factor of *measurability and value add.* This was not something that was at first obvious from the interviews, but rather it came as a result from the survey. It became obvious that one missing factor in order to have successful alliances of any sort was to actually know the intent of the alliance and, more importantly, to measure and thereby control fulfillment of the intent. This observation is supported by Das and Teng (1998, 2001).

Transfer Capacity

Characteristics of knowledge transferred
    - Causal ambiguity
    - Unprovenness
    - ICT
    - Purpose of learning
Characteristics of the source of knowledge
    - Motivation
    - Reliablility
Characteristics of the recipient of knowledge
    - Motivation
    - Absorptive capacity
    - Retentive capacity
Characteristics of the context
    - Barren organizational context
    - Arduous relationship
    - Intent/measurability

Relationship Governance

As has been mentioned repeatedly within this work, alliances are to a great extent about relationships. The empirical material as well as analysis confirmed the previously identified factors, but there are still some aspects around each that could be mentioned in preparation for the final model.

Starting with *Juridical and Agency* aspects, I would argue that even though there are examples from the interviews that show that alliances can succeed based purely on Trust and relationship values as described by for instance Noreen (1988) as well as Das and Teng (2001). There was also evidence that supported the notion that alliances have a better chance of succeeding when legal matters such as contracts have been taken care, i.e. evidence in line with that of Daboub and Calton (2002). The agency aspect is very interesting since it seems to overlap other thoughts on alliance management. For instance Park and Ungson (2001) discuss the potential failure of alliances from agency costs, which they specify to mean coordination of partners and differences in intent,

which will be discussed momentarily. What is clear is that firms suffer less from coordination costs when juridical aspects have been taken care off. Regrettably coordination is not only hinging on contracts, but also on how well partners intermesh.

The *strategic fit or steering* of firms has many implications. I would like to start with steering of the firm. As has been shown in the empirical material, I would argue that steering should be about resource allocation, which I will get back to at the end of the relationship governance segment. Let us then look at strategic fit from an absorptive perspective as described by for instance Cohen and Levinthal (1990). They argue that having overlapping knowledge is needed in order to be able to recognize when knowledge and learning is desirable, but at the same time too much overlap will stagnate innovation. What is needed is a strategic fit that implies a sufficient level of overlap of knowledge in order to ensure effective *communication,* i.e. lower coordination costs. More importantly Cohen and Levinthal (1990) argue for the need of a functioning *communication* interface since:

> "an organization's absorptive capacity is not resident in any single individual but depends on the links across a mosaic of individual capabilities, Cohen and Levinthal (1990:133)".

Furthering our discussion around communication and to certain extent agency, DeTurk (2006) argues that dialogue that tries to transvers differences will create a better intercultural understanding, which in turn will facilitates intergroup alliances. This is done through communication and the development of personal agency. This leaves us with a strong case to why *ICT* is a great tool for augmenting the need for communication and agency building. Despite the fact that there was not significant data to support the notion , I would still argue that it has value. The data showed that ICT is a crucial aspect in alliance work, where ICT can be both a facilitator for communication and, more importantly, a tool for knowledge transfer, as has been discussed by for instance Avgerou (2010) and Aral and Weill (2007). Looking to ICT applications they are singularly well suited to help us make sense of complex systems. This would strongly suggest that they should be a key factor in helping firms realize and find potential value in their alliance base.

Attitude and *Intent* are hard to measure as such, but never the less Intent was mentioned frequently during interviews and was shown to have a significant impact by the survey. Even though we have discussed the importance of strategic fit between alliance partners, this is sometimes ambiguous in nature. What I mean with this is that I would argue that strategic fit in some instances is similar to having similar intent, and not a product of having similar technology or similar knowledge. Pérez et al. (2012) argue that by having similar intent, companies with asymmetric technologies, e.g. an IT company and a Security company. Going back to the empirical material it was clear that intent, committing resources and accepting that learning may implicate changes were important factors. This is interesting in so much that authors such as Simonin (2004) discuss these notions. Cohen and Levinthal (1990) go as far as to say that when there is less overlap of knowledge between partners, there needs to be an "intense effort". The idea is that it is not enough to expose individuals to relevant knowledge. There also needs to be emersion, and intence efforts to learn. This has been confirmed by Aral and Weill (2007) who in reference to learning about ICT discuss the importance of both intensity and frequency of use. But what both articles signify is that there needs to be both attitude and intent to learn and use.

The word *Trust* has significant impact on relationship governance. It was ever present within interviews as well as survey. And I would continue to argue that using trust to overcome potential problems as described by Rottman (2008) is a good supplement to formal contracts, good communication and intent. Think of Trust as the final safety net for the alliance. Strong trust has been proven to have mitigating qualities in cognitive processes and the potential to be used as a tool to lower risk in alliance building, see for instance Das and Teng (2001) and Inkpen and Tsang (2005)

During the analysis *Goals* and *Sell through* where discussed, but here again I would argue that goals as such are part of an intent that should be communicated through the alliance network in order to have a better strategic fit. This done correctly raises trust and lowers barriers for knowledge sharing as mentioned by among others Becerra et al. (2008). When it comes to sell through I would argue that this is some parts communication of intent and some parts actual allocation of resources to handle relationships as such. This also falls under steering, which was previously attached to strategic fit. I would argue that what we need to come to terms with is that in order to any relationship to function, or for learning to occur between alliance partners

there needs to be committed resources that can see the alliance through start to end how ever long that is, be it a weekend excursion or a very long-term commitment. This is why I have included resource allocation as a specific factor under relationship governance.

This leaves us with slightly altered factors within the relationship governance part of the framework.

Relationship Governance
- Juridical/Agency
- Strategic fit
- Communication, ICT augmenting
- Attitude/Intent
- Resource allocation
- Trust as a product of the others

Cultural fit

Whether you view culture as the very dangerous thing that is often misquoted[41] to have Herman Goering reaching for his gun, or you view culture as something that has to be taken seriously in order to understand ICT and organizations as described be for instance Westrup et al. (2003), this research has showed culture to have far reaching influences for alliance work as well as relationships in general. I would argue that two central things have barring on the cultural fit as well as on the entire framework. First and foremost I got validation that professional culture transcends all other cultures as was hypothesized by Sirmon and Lane (2004). The second thing that came to be was a thought that ICT as a tool could be, or at least help to be, what

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[41] **Whenever I hear the word 'culture' I reach for my revolver.**" is a quote that is often attributed to Herman Goering, but in actuality it was said as "Wenn ich Kultur höre ... entsichere ich meinen Browning!" and uttered by the character Thiemann in Act 1, Scene 1 of the play Schlageter, written by Hanns Johst. This play was first performed in April 1933, in honor of Hitler's birthday.

Cohen and Levinthal (1990) discuss as the interface for relationship governance and cultural fit. I will expand on this notion of interface in the final parts of the thesis. Going back to the cultural fit as such, Walsham (2001) criticizes a lot of prior cultural studies as oversimplifying the subtleties of cultural differences, which Avgerou (2010) takes further by advocating a point where neither ICT nor culture can be seen as uni-dimensional determinants, or factors, of values and behaviors. Rather we need to view it as:

> Information system, seen as hybrid networks of artefacts, people, and institutions, are subject to negotiation and local shaping. Cultural influence, seen as historically formed disposition for a particular behavior, may stem from the innovating organization, its national or regional environment, or the social class of individual actors. Avgerou (2010:6)

What this means is that we might have to look at culture as one influencing factor on ICT and vice versa, but going back to the empirical material this means that culture as such is important to the different parts of the model and that we need to discuss them further.

Despite the expostulated absence of similar organizational cultures, where the two industries could be said to work within their own silos, there was still an awareness of a need to handle both the need to understand the other industry players and the need to eventually adopt products to work together. In essence there was agreement that an organizational culture that could accept change and foster learning was preferable even if the *Industrial* culture was focused on core values within the silo. It was also interesting to note that a forth culture was mentioned in the empirical material, and it resulted in a briefer discussion on *national culture* in the analysis. Going by Daboub (2002) and Fernández et al. (2010) as well as the analysis of how the industrial and organizational cultures interacted, I would argue that what is needed is a more flexible organization that can connect its different organizational activities over disperse cultural norms whether they be industrial, organizational or national.

In the end I would argue that the professional culture is most important, but there is also evidence to support alliance success where the professional culture has not been similar, which makes me reluctant to change much in the culture factors. I would have to suggest that we probably need to study culture

specifically in relation to all other factors in order to say something more definite about which cultural aspect is more important at any given time. It suffices to say that culture as such is very important in alliance work.

Cultural fit
-      Professional culture -   Organizational culture -   Industrial culture

Final framework

After having gone through the analysis as well as the discussion of the new framework, I put all the three sub frames together in order to get a final framework.

Table 15
Final framework of ICT capability transfer

Transfer Capacity	Relationship Governance	Cultural fit
Characteristics of knowledge transferred - Causal ambiguity - Unprovenness - ICT - Purpose of learning Characteristics of the source of knowledge - Motivation - Reliablility Characteristics of the recipient of knowledge - Motivation - Absorptive capacity - Retentive capacity Characteristics of the context - Barren organizational context - Arduous relationship - Intent/measurability	- Juridical/Agency - Strategic fit - Communication, ICT augmenting - Attitude/Intent - Resource allocation - Trust as a product of the others	- Professional culture - Organizational culture - Industrial culture

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Overarching thoughts

Having concluded the framework I set out to do, I am still left with some thoughts around the subject matter at hand. Alliances abound and more often than not there are grand talks about learning outcomes from the alliances (Davidson and Olfman, 2004, Hamel, 1991, Larsson et al., 1998). Evidence would seem to suggest that while companies often advocate that they have learning motives, they might just really want a shortcut to products and market where a possible byproduct is to learn about the alliance partner's products. This is an interesting observation both in its own right, i.e. if this is true for alliances in all fields, we would need to rethink a lot of previous alliance theories, and it is interesting for the security industry and IT industry as such. The observation implies that we should not focus on ICT knowledge being transferred, but rather we need to focus on how the security companies are able to use and avail themselves of their partners ICT knowledge as well as products. By default that also means that the IT companies might need to rethink their alliance strategies. Taking this thought one step further we need to separate ICT knowledge from ICT capability. Recalling Aral and Weill's (2007) discussion around ICT capability, it is focused around having and understanding of the hardware that makes up ICT as well as the practical usage of this hardware, which in their view constitutes ICT capability. I would argue that the capability we should be focusing on is actually a capability to extract value out of ICT. This means that we need to see how hardware as well as software can be used. This train of thought is not new to the IT industry. To mention one example, Duysters et al. (1999) discuss the need to rethink technology alliances to be more flexible, which in this case means that alliances are based on contracts and/or trust, and not on different forms of equity agreements. This line of thought has been further supported by Judge and Dooley (2006) who have shown that there is no evidence to support that mutual equity investments result in less opportunistic behavior. Of course we can also relate this entire discussion to Cohen and Levinthal's (1990) discussion around the need to have functioning interfaces (internally as well as externally) in order to first and foremost transfer knowledge, but also in order to see potential sources of innovation as well as the ability to:

> "… make novel linkages and associations – innovating – beyond what any one individual can achieve" Cohen and Levinthal (1990:133)

Having concluded that the organization's value resides in the individuals of the organization, within the links that are set up and controlled by relationship governance and cultural aspect, the situation becomes even more complex. This complexity is something that Lichtenthaler (2008) tries to grapple with in his discussion on *relative capacity,* where the central thought is that a firm's relative capacity refers to its ability of externally retaining knowledge. Lichtenthaler argues that by extending the firm's external knowledge base, the internal knowledge base can be relatively smaller. What this would imply is that there is a smaller need for actual knowledge transfer to take place and a greater need for understanding and steering of what to do with the knowledge. This still leaves us in a situation where the ICT capability as such is tacit, explicit or maybe both and we still have no clear idea of why it is hard to acquire. More importantly we need to address why companies need to have this capability in the first place.

Let us focus on this aspect for just a moment. Studying the security industry and their perceived need for ICT capability, it could also be argued that there is no need since the industry has enjoyed double-digit growth for more than a decade. The empirical material as well as theoretical insights point to extra costs associated with wanting to transfer ICT knowledge with an uncertainty of how to measure the gains. Furthering the thoughts around gains, there is the aspect of time when transferring knowledge. Looking to for instance Cohen and Levinthal (1990), they actually discuss the possibility of buying knowledge in different ways as well as whether short-term alliances are a better way of retaining a high level of innovation. These are both ways of shortening the time it takes to control knowledge. This could point to: a) shorter alliances being preferable and b) the possibility to extract innovation and sales from our alliances.

As has been discussed repeatedly during this work there are a number of softer issues that help, or hinder, alliances. Trust being one of the strongest ones. All alliances are based on trust in some ways, but the more interesting aspect to consider is if the trust has to be on a personal or an organizational level or possible even on both levels? The material seems to point to successful alliances needing both parts, where personal trust can get you far, but not all the way. To exemplify individuals can trust each other implicitly, but they cannot control what is done on a higher level where the alliance as such can be made and broken regardless of their personal trust. On the other hand

personal trust between for instance two CEOs can also sustain an alliance far longer than any legal contract or letter of intent can do.

Another factor that has been discussed and included in the framework is intent. The word intent is not new within alliance research, on the contrary. Intent, as described by for instance Simonin (2004) or Kale et al. (2002) was a part of the original framework. Later articles by e.g. Kumar and Nathwani (2012), Nzungu (2012), Pérez et al. (2012) also discuss intent as linked to successful alliances. In some cases the intent can be attributed to motivation under Transfer Capacity or Attitude under Relationship governance, and in other cases we see intent as a strong part of context of the alliance as such. Looking to the literature that has been covered within the framework, authors such as Doz and Hamel (1998), Hoffman (1997), Lorange and Roos (1993) as well as Davidson and Olfman (2004) have all discussed Commitment to alliances as an important factor, and this could arguably be to show an intent. Nevertheless the actual word Intent was mentioned often enough to warrant a discussion here, especially on the aspects that were hard to pinpoint. One such aspect was the intent or intention with the alliance as such. This could mean to know your goals, e.g. if they are short or long term. This potential difference in goals is discussed by among others Lorange and Roos (1993), Parkhe (1991) and Reuer and Miller (1997) as a potential problem.

In connection to this there was also a discussion around having and implementing resources towards these goals, and to do so a clear intent is needed. One example of this from the cases was when the ONVIF alliance was set up. The goals were quite clear from the beginning (Standardization, Interoperability and Openness) and looking to interviews done, we can also see that resources were allocated both towards achieving the goals and towards setting up a framework of rules and IPR documents in order to know how flexible the partners could be. It is interesting to note that allocating resources as a phenomenon towards intent is mentioned by Dyer et al. (2001), Kale et al. (2002), Kale and Singh (2007) and Rottman (2008). On the other hand I would also argue that committing resources is connected with both *Characteristics of the source of knowledge* as well as the *Characteristics of the recipient of knowledge*, either as a specific new factor or under motivation.

This still leaves us with more questions, of which the most central is *What is it with ICT capabilities that makes them so hard to transfer?* It would seem that firms prefer to skip learning about ICT capabilities and just use them to some

capacity to get products to market. I have discussed speed to market as one possible aspect, but there are others. From a marketing and image perspective, it might be better to have an alliance with a well-known player than trying to acquire the knowledge internally. Think about the Assa Abloy – Cisco case that was a real media splash. Taking something from the pure IT side, many different computer manufacturers have an "Intel inside" logo to signify that they buy their processors from Intel instead of producing them in-house. Let us now further our thoughts on what makes it easier to use alliances than to focus on transferring knowledge. On a meta level, I would argue that organizations will learn about the qualities of their alliance partner over time, regardless of what the official aim of the alliance is. On the other hand it could also be argued that it might be pointless to learn since by the time you have learned, there is new technology on the horizon that needs to be incorporated and used. Hence you should not focus your energy on learning that but rather on learning how to use and integrate alliance partners' knowledge.

Staying on a meta level, it could also be argued that there is no coercive factor on the security industry to adopt ICT to any greater extent. What I mean by this is that there are plenty of legacy systems with long lifespans ahead that need to be both maintained and in some instances replaced with other legacy systems. Furthermore there are vast numbers of hybrid systems that can help bridge the technology gap for many years to come, and unless we have what Christensen (1997) describes as a disruptive technology change, hybrid systems will continue to bridge the knowledge divide between legacy systems and IP enabled systems as described by Weaver (2009).

Of course the more obvious answer could be that acquiring ICT capabilities is just too hard for the security players since they missed what Cohen and Levinthal (1990) describe as the early investment in absorptive capacity and that has caused a situation where catching up is just to costly.

Without taking away from the discussion above or the created framework, I would still venture as far as to say that some factors are more important than others in alliance work. There needs to be an understanding of the context in which the alliance takes place. This context, e.g. that transfer of knowledge is the focus of the alliance, needs to be backed by motivation from source and recipient. There needs to be absorptive capacity throughout the alliance and the relationship as such needs to be governed. Trust and a similar professional culture will get you far but not all the way; there still needs to be mundane

things such as contracts, resources and an ability to share or transfer information/knowledge which, more likely than not, will include ICT in different shapes and formats.

Conclusion

Going into this research, it soon became clear that the field I had embarked on was anything but simple. The research subject as such, i.e. alliances, was complex and the industry chosen for empirical analysis was complex as well as highly fragmented. It has made the work a bit of a challenge at times. It soon became apparent to me that what I wished to do, was to develop a framework from which we might begin to understand the particular problems associated with acquiring and employing new ICT capabilities through alliances. To that end, I had to develop some form of a preliminary framework to both test my ideas and, more importantly, to get a starting point to the research. The preliminary framework was based on a larger literature review, the netcasting done in the empirical work led to a number of new or previously underestimated factors being added. In the end of the analysis chapter I discussed the new framework and possible explanations to the factors that were finally presented. In this concluding chapter I will discuss the validity of the work as well as possible implications it can have on practice as well as theory.

The purpose of the thesis was to develop a framework that describes how alliances can be used to transfer ICT capabilities into an organization or a system. This was a two-fold attempt to create both a helpful tool for managers to lean against in their endeavors to having successful alliances and, more importantly, an attempt to try to fill the theorized knowledge gap on alliances. While it is difficult to say anything with certainty about how the new framework will work out it has been tested empirically, what we can do is reflect on and around the process that got us to the new framework, i.e. have I managed to close or at least narrow the posited knowledge gap?

Knowledge contribution

I have chosen to make an ongoing interpretation of the data collected. I started reflecting on the data already in the empirical chapter, both to keep tabs of the vast material and in the interest of the readers' ability to track the evolving ideas. For clarity's sake, I will first have a brief discussion on validity followed by what I think are the thesis contributions divided into the three parts of research, practice and teaching.

Validity

Following Glaser's (1978) categories of validity, I would argue that the question of the integration of the framework has been discussed thoroughly throughout the entire text, from the theory part, through empirical findings and the analysis. Thus I shall not dwell further on the integration dimension – it should be clear by now that the model is integrated and centered around the three categories of factors, i.e. transfer capacity, relationship governance, and cultural fit. The interrelation and consistency can (always) be debated, like the granularity and the details of the subcategories. But there should be no hesitation that the proposed integration is plausible.

Considering relative explanatory power, this framework is designed for, and by empirical work on, the converging ICT and security industries, and therefore has particular strength in alliances involving ICT firms and non-ICT firms. In that perspective, there are few other frameworks to compare with. Looking at more general alliance literature this framework has its key advantage in its scope, as it is based on the work of several other theories and models and yet enriched and expanded based on empirical findings from the dynamic contexts that alliances involving ICT firms bring to the table. For instance, in comparison to state of the art alliance literature, such as Bronder and Pritzl (1992) and Park and Zhou (2005) who focus on how alliance can help with complex market situations this framework uses the thoughts on complexity and applies it to knowledge transfer and ICT. Behrend (2006) and Park and Ungson (2001) focus on how you can open your organization to risk when aligning, where this framework acknowledges risk and sees how intent, trust and agency can work around this. Kale and Singh (2007) and Rothaermel and Deeds (2006) to name a few work with alliance capability as

such and this framework uses this discussion and adds to it how alliance capabilities can be connected with knowledge transfer of ICT capabilities. Das and Kumar (2011) discuss regulatory focus and opportunism in alliances, whereas this model recognizes this risk but also includes how cultural norms, values as well as relationship governance will effect both opportunistic behavior as well as the need for regulations.

Thirdly, in terms relevance, I would argue that the framework is useful both for other researchers and for practitioners dealing with or interested alliances, particularly so involving ICT firms and capabilities. In its extension I would also argue that it is relevant for alliances set up in turbulent or dynamic environments. In conjunction with that, it is a framework that caters for attempts at accessing knowledge and, thanks to the empirical conclusions made, alliances where the main benefit in the end might differ from initial aspirations. It also highlights the sometimes serendipitous and unexpected results of alliances, and that higher aspirations might have to be replaced by more modest ambitions. Thus it is a framework that is useful across varied sets of goals and objectives. It is also broad on the explanatory side, including cognitive, cultural and relational features, all with their own sets of sub-categories of factors. For the practicing manager or analyst it offers several tools for comprehension and implementation. The model can be used as a traditional checklist to ensure that managers are aware of the different pitfalls of both alliance building as well as knowledge transfer. But more importantly it can be used to trouble shoot complex alliance situations in order to get valuable insights in possible reasons for outcomes. I would venture as far as to say that it could be of particular use for the board member of a security company who is looking for attractive avenues to increase reach and volume of their product line.

Let us not get carried away though and think that the model is the answer to all alliance related problems. The model was developed with the physical security industry in focus and the first instance would be to expand the study into industries other than security that converge with ICT: One though could be to test the model on an industry where we know that ICT has had large impact e.g. the music industry. Other dynamic contexts outside of ICT would also be interesting. However, the model has its limitations in the sense that it is intended particularly for ICT and other technologically dynamic situations – but less so for steady-state environments. It is also primarily aimed for alliances aimed at accessing knowledge, which puts a mild ramification to its

relevance to alliance literature at large. That being said I would still argue that because of the large theoretical diaphanoscopy[42] that was done in order to shed light on what theoretical contributions there are when it comes to understanding alliances the model should potentially be usable even outside of the knowledge transfer alliances.

Implication for research

When it comes to theory, the contribution of the thesis lies primarily in testing the preliminary framework as this configuration of theory to my knowledge has not been tested before.

To me the most interesting thing about the preliminary framework was that there was empirical validation for all the included factors, even though the framework was built up from five different alliance theories (agency, culture, organizational learning, knowledge and transaction cost theory). It could be argued that some of the factors had less support than others, but nevertheless all factors were mentioned in the survey and in the cases. This implies that the postulated framework has some merit and coupled with the additional factors that were identified, it should prove to be a useful tool to an alliance manager or an interesting starting point for an empirical study on increasing the success rate of alliances.

Implication for practice

The research to date shows that the preliminary framework holds true, and the additional factors should only improve it further. That being said many of the factors that make up the framework are tacit in nature and hence are hard both to measure and instill and make use of as any form of a recipe. Furthering the problem is that the empirical data clearly showed that one weakness shared by almost all interviewees was their lack of measurements in and around alliances. It would be hard to get valid data from a test of the framework, since alliances more often than not lack specific goals and

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[42] **Diaphanoscopy a procedure by which the passage of light through body illuminates the object or part under examination being interposed between the observer and the light source.**

measurements attached to them. If you were to start using the framework, then one of the key factors is making sure that there are measurable goals and clear purpose of the alliance, which in themselves would create an awareness of the task at hand that in all probability influences the results. Short-term relationships tend to cause the same amount of work, or even trouble, as long-term commitments. I would therefore argue that all involved parties maximize output from the influx of work by stretching alliances as far as possible.

It would be valuable to try the framework and observe what factors have an actual impact on the day to day practice of alliance management.

Implication for teaching

There are a few obvious implications for my own teaching from this work. From the field of Informatics, it is a good starting point for a case study of how different ICT systems could help alliance building within or between companies. For instance McAfee (1996) has claimed that it is not as simple as "build it and they will come" but rather there needs to be buy in on all levels of a company. Here it would be very interesting to hold discussions with the students on a) how to ensure that companies use the ICT systems and b) what can be done to get these systems to support the factors identified within the framework.

Reflection on research quality and further research

Discussing the quality of the research means that we also need to discuss the validity and content of the research done (Larsson, 1994). I will not dwell on the validity since this has been discussed in the fulfillment of purpose segment, but the content is of course closely related to any stamp of quality. March (2006), for instance, argues that the fundamental quality of research lies in the rigor, relevance and results of the work done. Larsson (1994) similarly argues that you need to have a rich empirical description coupled to a structured way of presenting the results. This essentially means that you need to present the empirical findings both perspicuous and reduced in complexity in order to achieve a form of quality recognized by our peers. In this research I have tried to put extra effort in describing the underlying industry and using

multiple sources for empirical gathering both to get ample material to work with and to set the scene for the reader. In this way I believe to have achieved what Alvesson and Sköldberg (1994) argue to be an empirical situation that is open to negotiation and interpretation depending on what perspective you view the material from. This is primarily achieved by both structured and ambiguous language that invites the reader to interpret from their knowledge. That is also supported by Larsson (1994).

Alliances are very complex and interest a multitude of theoretical disciplines, which makes it even more important to have an empirical base that allows for different interpretations depending on which field of study you come from.

Finally I have identified three areas that could be of interest in future research. First and foremost I think it would be beneficial to test the proposed framework in a live environment to see both if it will help companies improve and to see if it is practically applicable or only a theorized utopia, which will prove inconvenient at best and impossible to work from at worst. Second, this being a thesis within the informatics field, I feel that it would be very interesting to further the studies on defining what the "technical support" that was mentioned as being an important factor actually entails for different alliance partners. Third, it is worth mentioning one thing that was not discussed in the interviews, namely the concept of the internal alliances and alliance building within larger multinational companies and how this possibly influences external alliances. There is some research done on this topic, e.g. Das and Teng (2000), Sivadas and Dwyer (2000), but this is an interesting topic for further study.

Appendix A

	Agency theory	Culture theory	Learning organization	Knowledge theory	Recourse Based View	Transaction Cost theory
Cognition	Managers and stakeholders are equipped with different cognitive schemas and tend to focus on different aspects of alliances	Mainly shaped by cultural differences, where cognition is based on shared norms and values	Cognitive abilities are path dependent and varies with an organization's absorptive capacity	Cognition implies the ability to adopt and make use of new knowledge	Individually based and hard to imitate, which indicates that alliances involve different, and sometimes incongruent, cognitive rules	The lack of alliance cognition will drive transaction costs
Learning	Occurs through dialogue and responsibility	Takes place through dialogue and shared social platforms, preferably in voluntary situations.	Involves both single and double loop learning, where the latter implies the ability to learn how to learn	Learning between organizations requires effective forms of knowledge transfer	A key factor for developing and internally diffuse resources	Learning about alliances will lower transaction costs
Knowledge	Mainly a commodity that needs to be shaped by the principal	Is mutually developed through social exchange and is not reducible to the individual	Conceived of as a heterogeneous and inter-organizational construct which is key to alliances	A complex term that encompasses tacit and explicit knowledge, and reside both individually and socially	Closely connected to a firm's unique (and often tacit) competitive abilities	Having both depth and with of alliance knowledge will lower transaction costs
Culture	An agency hazard that needs to be congruent with the goals of principals	Encompasses organizational, national and professional culture and involves shared norms, values and behaviors	Can either facilitate or hamper a successful learning process, and as such influential in alliance building	Is important for the diffusion of knowledge, where knowledge oriented cultures are defined by an innovative, open and communicative atmosphere	Not a key construct but admittedly important for exploring new innovative resources	Culture can act as a remedy for opportunistic behavior which is one of the major cost drivers in Transaction Cost Theory
Intent	Managers intentions are often selfish and at odds with stakeholders and therefore needs to be negotiated	Varies greatly across different cultures and is opaque and difficult to predict	Evolves through a mutual learning process, where the initial intent is gradually developed	Is often tacit but needs to be explicitly articulated in alliances	Firm-specific and not necessarily transparent	Actors are ultimately aimed towards their personal interest and hence create costs
Trust	Primarily secured by communication, but also through diversification and portfolio management	Develops over time as cultures begin to share similar values and risk perception	A prerequisite for higher forms of learning	Facilitates knowledge, although continuous questioning is important for developing knowledge	Important in relation to alliances, although unique competitive resources are assumed to be inimitable	Trust is an other factor that can act as a remedy for opportunism and hence lower Transaction Costs
Strategy	Is developed through an interaction between principals and agents but where the former is meant to carry the ultimate responsibility	Policymaking is a source of conflict that can be overcome by developing a shared practical consciousness	A continual process that needs to involve innovative forms of learning from both parties	Is crafted on the basis of existing knowledge as well as the ability to develop new knowledge	Based on the resources specific for the firm	An alliance strategy can help lower transaction costs in uncertain market situations

Appendix 1 Interview index

Date	Name	Title	Org	Topic	Type	Where	Duration
	Maria Martinsson		Skanska	CSO study	Telephone		00:30
	Daniel Nord		FOJAB	CSO study	Telephone		00:22
	LG Axelsson		Bevakningsgruppen/CB	CSO study	Telephone		00:20
	Erica Axlesson		Ponnert Arkitekter	CSO study	Telephone		00:33
			PEAB	CSO study	Telephone		00:35
			WSP	CSO study	Telephone		00:10
			US Army	CSO study	Telephone		00:15
2006-09-27	Dan Dunkel	President	New Era Associates	Convergence evangelist	Personal	San Diego	01:20
2006-09-27	Kevin Wine	VP Marketing	Lenel	US market/alliances	Personal	San Diego	00:55
2006-09-27	Dan Chapnut	Director Market communication	March Networks	US market/alliances	Personal	San Diego	00:35
2006-09-28	Russel A Bandy	Director Partner Development	GE	US market/alliances	Personal	San Diego	00:57
2006-10-19	Johan Lembre	VP, Product Management	Axis	Axis market activites	Personal	Lund	01:00
2006-11-02	Eric Michelsen	Director Interconnect	Assa Abloy	Alliance questions	Personal	Gothenburg	02:00

ivity
Platforms

2006-11-02	Mikael Haglund	Development Direktor	IBM Gothenburg	Alliance questions	Personal	Gothenburg	01:30
2006-11-09	Per Johansson	Sales Manager Sweden	Bosch	Alliance questions	Personal	Stockholm	01:30
2006-11-09	Åsa Christiander	Program Office Manager	Assa Abloy	Alliance questions	Personal	Stockholm	00:50
2006-11-12	Eric Michelsen	Director Interconnectivity Platforms	Assa Abloy	Alliance questions		mail	
2006-11-12	Karin Sellberg	Director Corporate Marketing	Axis	Workshop	Personal	Lund	02:00
2006-11-12	Dominic Bruning	EMEA manager	Axis	Workshop	Personal	Lund	02:00
2006-11-17	Henrik Friborg	VP strategic Management	Milestone Systems Inc.	Alliance questions	Personal	Copenhagen	02:00
2006-12-06	Tony Saville	Publisher	SourceSecurity.com	UK market general	Personal	Lund	01:30
2006-12-07	Dominic Bruning	EMEA manager	Axis Communications Inc.	Alliances	mail	Na	
2006-12-07	Trygve Kolstad		Niscayah UK	Alliances	mail	Na	
2007-01-11	David Young	Head of development	G4Tec	Alliance questions	Personal	Birmingham	04:30
2007-02-20	Franco Van Heijningen	VP US Market	Niscayah, US	US market SecSys	Personal	Norcross, GA	08:20
2007-02-20	Marty Guay	President US market	Niscayah, US	US market SecSys	Personal	Norcross, GA	08:20
2007-02-20	Carol Enamn	Head of communication US market	Niscayah, US	US market SecSys	Personal	Norcross, GA	08:20
2007-02-20	Mark Farus		Niscayah, US	US market SecSys	Personal	Norcross, GA	08:20

2007-02-23	Fredrik Nilsson	President US market	Axis Communications Inc.	US market Axis	Personal	Chelmsford, MA	02:30
2007-03-27	Shelby Beard	Marketing Manager	CSC	US market/alliances	Personal	Las Vegas	00:45
2007-03-27	Steve Lasky	Publisher/Editor-in-Chief	Security Technology & Design	US market/alliances	Personal	Las Vegas	01:04
2007-03-28	Dan Moceri	CEO	Convergint Technologies LLC	US market/alliances	Personal	Las Vegas	01:11
2007-03-28	Dennis Charlebois	BroadWare Technologies	BroadWare Technologies	US market/alliances	Personal	Las Vegas	00:28
2007-03-28	Gary Klinefelter	Chairman	Open Security Exchange	US market/alliances	Personal	Las Vegas	00:36
2007-03-28	Frank Iezzi	Regional Sales Manager	Iqinvision	US market/alliances	Personal	Las Vegas	00:22
2007-03-28	Daniel Pulskamp	Director Sales	March Networks	US market/alliances	Personal	Las Vegas	
2007-03-28	Bruce Doneff	US Regional Manager	IPUser Group	US market/alliances	Personal	Las Vegas	
2007-03-28	Eli Gorovice	CEO	DVTel	US market/alliances	Personal	Las Vegas	00:32
2007-03-29	David L.Bunzel		Santa Clara Consulting Group	US market/alliances	Personal	Las Vegas	00:45
2007-03-29	Bob Shouse	Sr. Marketing Manager	Tech Data Corporation	US market/alliances	Personal	Las Vegas	00:49
2007-03-29	Shereen Fink	Industry Marketing Manager	Sun Mircrosystems	US market/alliances	Personal	Las Vegas	00:42
2007-03-29	Gerrit Hurenkamp	Director Regional Support	Pelco	US market/alliances	Personal	Las Vegas	00:27

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2007-03-29	Joseph H. Olmstead	Director Marketing Communications	Pelco	US market/alliances	Personal	Las Vegas	00:27
2007-03-29	Mark Kolar	Director Physical Security	Cisco	US market/alliances	Personal	Las Vegas	01:01
2007-03-29	Steven Van Till	President & COO	Brivo Systems LLC	US market/alliances	Personal	Las Vegas	00:44
2007-03-29	Meredith Esham	Director of Marketing	Brivo Systems LLC	US market/alliances	Personal	Las Vegas	00:44
2007-03-29	Rich Anderson	President	Phare Consulting	US market/alliances	Personal	Las Vegas	00:56
2007-03-29	Severin L. Sorensen	Chairman Pysical Security Counsil ASIS		US market/alliances	Personal	Las Vegas	01:00
2007-03-30	Martin Kaufmann	Channel Marketing Manager	Milestone Systems Inc.	US market/alliances	Personal	Las Vegas	00:47
2007-03-30	Eric Fullerton	President	Milestone Systems Inc.	US market/alliances	Personal	Las Vegas	00:47
2007-03-30	Tom Galvin	President	NetVideo Consulting	US market/alliances	Personal	Las Vegas	00:52
2007-03-30	Mark McCourt	Publisher	Security (BNP media)	US market/alliances	Personal	Las Vegas	00:43
2007-03-30	Jim Sara	National Alliance Manager, Global Technology Services	IBM	US market/alliances	Personal	Las Vegas	00:49
2007-03-30	Fredrik Nilsson	President US market	Axis	US market/alliances	Personal	Las Vegas	02:15

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2007-04-03	Anna Dorcey	Head of alliances	3Com	US market/alliances	Telephone	Na	00:51
2007-04-04	Josh Phiips	Head of alliances	Lenel	US market/alliances	Telephone	Na	00:37
2007-05-22	Paul Browne	Business Development Director	Assa Abloy UK	UK market general	Personal	Birmingham, UK	00:35
2007-05-22	Martin Kaufmann	Channel Marketing Manager	Milestone Systems	UK market general	Personal	Birmingham, UK	00:40
2007-05-23	Trygve Kolstad		Niscayah UK	Workshop	Personal	Birmingham, UK	01:00
2007-05-23	Dominic Bruning	EMEA manager	Axis	Workshop	Personal	Birmingham, UK	01:00
2007-06-21	Glen Greer	CTO Shared Technologies	Assa Abloy	Workshop	Personal	Lund	01:00
2007-06-21	Ray Mauritsson	CEO	Axis	Workshop	Personal	Lund	01:00
2007-06-21	Johan Lembre	VP, Product Management	Axis	Workshop	Personal	Lund	01:00
2007-06-21	Rolf Norberg	CTO	Securitas Systems	Workshop	Personal	Lund	01:00
2007-09-24	Brian Leland		GE	Workshop	Personal	Las Vegas	00:55
2007-09-24	Bud Broomhead	CEO	Intransa	US market/alliances	Personal	Las Vegas	00:45
2007-09-24	Ray Bernard	CEO	Go-Rbcs	US market/alliances	Personal	Las Vegas	00:55
2007-09-24	Josh Phiips	Head of alliances	Lenel	US market/alliances	Personal	Las Vegas	00:41
2007-09-25	Dan Dunkel	CEO	New Era Associates	US market/alliances	Personal	Las Vegas	01:00
2007-09-26	Eric Michelsen	Director Interconnectivity Platforms	Assa Abloy	workshop	Personal	Las Vegas	01:30

2007-09-26	Mark Weaver	Niscayah, US	US market SecSys	Workshop	Personal	Las Vegas	01:30
2007-09-26	Mark Farus	Niscayah, US	US market SecSys	Workshop	Personal	Las Vegas	01:30
2007-09-27	Kevin Wine	VP Marketing	Lenel	US market/alliances	Personal	Las Vegas	01:00
2007-09-27	Severin L. Sorensen	President	Sikyur	US market/alliances	Personal	Las Vegas	01:10
2007-09-27	Fredrik Nilsson	President US market	Axis	US market/alliances	Personal	Las Vegas	01:45
2007-09-27	Bud Broomhead	CEO	Intransa	Workshop	Personal	Las Vegas	00:45
2007-09-27	John Dean	Alliance manager	Intransa	Workshop	Personal	Las Vegas	00:45
2007-12-14	Rolf Norberg	CTO	Securitas Systems	Workshop	Personal	Stockholm	01:00
2007-12-14	Glen Greer	CTO Shared Technologies	Assa Abloy	Workshop	Personal	Stockholm	01:00
2007-12-14	Ray Mauritsson	CEO	Axis	Workshop	Personal	Stockholm	01:00
2008-01-23	Dominic Brunning	EMEA manager	Axis		Personal	Lund	02:15
2008-03-31	Severin L. Sorensen	President	Sikyur	Alliances	Personal	Las Vegas	01:30
2008-04-01	Bob Hayes	Managing Director	Security Executive Council	Security Executive Council	Personal	Las Vegas	01:20
2008-04-01	Lynn Mattice	Board of Advisors	Security Executive Council	Security Executive Council	Personal	Las Vegas	01:20
2008-04-02	Ray Bernard	Principal Consultant	RBCS	Alliances within the Sec industry	Personal	Las Vegas	01:00

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Date	Name	Title	Company	Topic	Type	Location	Duration
2008-04-02	SIA	System Integration Group					01:30
2008-04-04	Shereen Fink	Industry Marketing Manager	Sun Mircrosystems	US market/alliances	Personal	Las Vegas	00:55
2008-04-04	Bob Shouse	Sales Manager	Tech Data Corporation	Alliances within the Sec industry	Personal	Las Vegas	00:55
2008-04-04	Mark McCourt	Publisher	Security (BNP media)	Workshop	Personal	Las Vegas	00:40
2008-04-04	Fredrik Nilsson	General Manager	Axis Communications Inc.	US market Axis	Personal	Las Vegas	00:55
2008-06-16	Glen Greer	CTO Shared Technologies	Assa Abloy	Workshop	Personal	Lund	01:00
2008-06-16	Ray Mauritsson	CEO	Axis	Workshop	Personal	Lund	01:00
2008-10-27	Mark Visbal	Director of Research & Technology	SIA	Alliances within the Sec industry	Personal	New York	01:00
2008-10-27	Jim Gingo	CEO	TransTech System	Alliances within the Sec industry	Personal	New York	01:00
2009-04-29	Eric Michelsen	Director Interconnectivity Platforms	Assa Abloy	Alliance questions	Personal	Lund	01:43
2009-06-05	Eric Plesner	CIO	VELUX	Alliance questions	Telephone		00:44
2009-06-11	Jonas Andersson	Head of ONVIF	Axis	Alliance questions	Personal	Lund	01:06
2009-06-18	Henrik Mella	Head of Eletronic door solutions	Assa Abloy	Alliance questions	Telephone		00:26
2009-09-03			Niscayah	Alliance questions	Personal	Stockholm	00:26

2010-02-24	Martin Gren	Founder of Axis	Axis	Alliance questions	Personal	Lund	00:42
2010-03-01	Glen Greer	CTO Shared Technologies	Assa Abloy	Alliance questions	Telephone		00:36
2010-07-30	Rick Geiger	Director of Engineering	Cisco Systems	Alliance questions	Telephone		00:52

Appendix 2 Questionnaire short

Transfer Capacity:

- How do you retain alliance knowhow individuals have?
- How do you disseminate alliance knowhow within the organization?
- What sort of learning programs do you have in place for alliance building internally as well as externally?
- How do you use ICT to share knowledge internally as well as externally?
- How do you monitor ICT skills within the organization?
- How do you choose alliance partners?
- How do you measure alliance success?
- How do you evaluate alliances and partners in them?
- How do you regulate or administrate alliance partnerships?

Relationship Governance:

- What role does ICT have in alliance building?
- What role does ICT have with your products?
- How do you measure or value trust within the alliance?
- How do you control/measure alliance intent between partners
- What resources do you put into handling your alliances?
- How do you evaluate you alliances?
- How important are personal relationships in your alliance building?
- Is trust an issue or are legal documents the issue with alliance building?
- How do you communicate the alliance internally as well as externally?

Cultural fit:

- What is the typical professional background of your employees?

- How does the industry view change?
- What is the typical professional background of your alliance partners?
- How does your organization view technological change?
- How does the industry as a whole view change and technological change?
- How, if at all, do you use ICT in your everyday work?

Appendix 3 Questionnaire long

General questions

What is the general purpose for your alliance work?

What is specific purpose of alliances?

(E.g. access to knowledge, access to products or production of products, access to customers or markets etc)

               Example:

What is your view of partnering and alliances in general?

Is there a need for alliances?

Example

Do you as a company have this need and to what degree?

Example

What alternatives are there to alliances?

Why have different alternatives been discarded? i.e. why have you not done M&A

Example

Information:

Have you identified key success factors for the alliance?

Can you measure alliances and what factors do you use?
Examples:

Are there clear metrics to look to?

How do you measure soft values versus hard values?

How do you communicate within the alliance project?
e.g. tools you use, (ICT) key target figures etc

How do you communicate alliance issues to other parts of your organization?

Culture:

How do you encourages alliance formation?
e.g. different forums, incentives, organizational forms
Examples

What obstacles are there to alliance formation?

Examples

What hinders leaning and knowledge sharing?

What ICT tools do you use to communicate with?

Cognition:

How do you work with learning around alliances and alliance functions?
E.g. do you have workshops to evaluate the alliances as such?

Examples

How do you work with knowledge sharing?
E.g. the alliance teams have reached a breakthrough in a production process. How, if at all, is this new knowledge perspired through the organization? *Example:*

Trust:

What are stakeholders to you and your company?
E.g. who are they, what is a typical role they play?

Examples

How do you manage your stakeholders?
E.g. meetings, newsletters, phone, threats, incentives?

Examples

Have you identified your stakeholders?

 If so through what process?

Examples

How do you keep track of your stakeholders?

How do you maintain trust within the alliance infrastructure?

Examples

Dedicated Functions and Intent:

Do you have dedicated functions that are working with alliances?

How does this manifest itself
i.e. give examples of the functions and instances e.g. legal department

In what sense does one or more dedicated functions restrict your actions?
e.g. legal concerns, duration of the agreement

Examples of legal concerns

Examples of duration of the agreement hampering your actions

How do you organize the functions?

Who do you put in charge of the functions (upper mgm, tech sales, development?)

How have you organized you functions within the company?

Examples

Do you have shared functions with your partners? If so how are they organized?

Examples

Infrastructure and Technology:

Would you say that you belong to an alliance network?

Example

What is the level of formalization around your alliances?
E.g. Do you have clear decision rules on how to evaluate/engage into/terminate alliances?

Examples of this and also when it has been used

How would you say that your infrastructure around alliances has changed over the last 5 years and what do you see in the future?

How do you audit and control you alliances?

E.g. monitoring activities, KPI measurements etc

Examples of this and also when it has been used

What kind of ICT hardware do you have/use?

What kind of ICT software to you have/use?

General Questions

How does you company describe an alliance network?

Is an alliance network different from an alliance ecosystem?

Can an alliance network be the same as a stakeholder network?

How does a collaboration differ from an alliance?

What are some alternatives to alliances?

What are pros and cons to alliances and the alternatives?

What is the difference between and alliance compared to a regular partnership?

What are areas of interest when it comes to alliances?

technical aspects/knowhow

products

Do your categorize alliances into different niches? i.e. strategic, personal, long reaching etc

When your company thinks about collaboration is an alliance at the top of the list or something else?

How does your partners alliances and partnerships influence you?

How does an alliance start?

        Personal contact

        Research of potential partners

Why does an alliance start?

        Personal contacts

        Specific know how

        Technological reasons

What factors influence an alliance?

        Are there different faces and do they have different meaning?

How active is the board of directors or the ceo in managing alliance?

How does the company value an alliance?

Are there measurements?

How are the alliances structured?

What is the cost of attaining and loosing an alliance?

How much of the alliance is structured around legal or contractual agreements?

Does the level of formalization around the alliances vary?

 Does this influence the output of the alliance, if so in what way?

How do you control the alliance? Steering committees, deliverables, milestones etc.

Are alliances different today compared to 5 years ago? 10 years ago?

        Why, describe, motivate

How many alliances or joint ventures have been abandoned over the last 5 years?

        Reasons, motivation.

How do you describe the Fenomen of an alliance?

        What are the expected results of the alliance?

        What are the results so far?

How does the company work with the alliances in order to achieve the required results?

        Where is the company with alliances and partners now?

                Is this in line with the company strategy?

Are some company partners better at alliances than others?

Which group would that be?

What is a form of having No alliance but still working with a partner or company?

Why are you interested in alliances?
Has the economics of M&A or new startups been considered?

        Market reasons?

        Productions reasons?

        Development reasons?

Have the joint motives for the alliance been communicated, if so how?
Are there formal/informal communications ways around the alliance?
Have the consequences of a partnership been evaluated?

How are the alliances "controlled" today?

        Economic values

        IS (Information Systems)

        Formal contracts

        Informal communication

        Interpersonal relations

        Joint venures

Is it important to communicate the alliance work?

        How do yoru measure or value trust within the alliance?

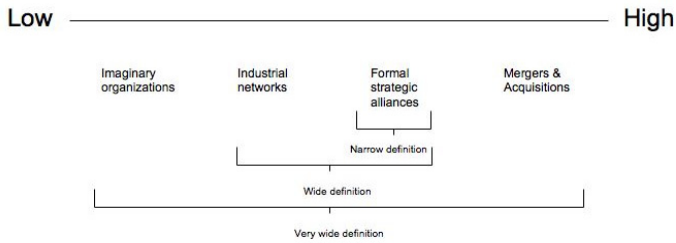Does IS influence the choice of an alliance?

How were the people that are involved in the alliance chosen for the role?
What are "tight" sectors for LUSAX?
What are factors that stop each partner form expanding limitless?

Can you illustrate how Formalized and Integrated you are on this axel

Degree of Formalizing and Integration

Low ————————————————————————— High

| Imaginary organizations | Industrial networks | Formal strategic alliances | Mergers & Acquisitions |

Narrow definition

Wide definition

Very wide definition

How does the alliance partners' culture influence your work and vise versa?

How do you build good alliances?

> In your organization

> Generally

Can IT help with building a good alliance network?

> Examples

Do you have inter organizations systems?

> Experience around this

How does your company use mobile systems in their network?

> msn, sms, mail, phonecalls etc

Would you describe mobile systems as an enabling factor or disabling factor for alliances?

(Doing a short workshop, let interviewee explain difference and connectivity of Networks, Cooperation, Joint ventures and alliances and how they are interconnected with stakeholders)

Appendix 4 Survey I

Name			Years in company		years
Company name			Years in security industry		years
Town and State			Years in IT industry		years
Year of birth			Educational background (subject area(s)):		
Sex (pls tick)	Male	Female			
Function (pls tick function(s))	Installer	Sales			
	Marketing	Purchase	Educational level:		
	Service/Maintenance		e.g. compulsory school, vocational training, high-school, university		
	Gen Mgmt	IT-dep			
		Other:			

	Disagree completely		(pls tick relevant box)			Agree completely		
I have a clear grasp of how alliances are defined	1	2	3	4	5	6	7	1
My company has a definition of what an alliance is	1	2	3	4	5	6	7	2
I have worked in a formal alliance program	1	2	3	4	5	6	7	3
My company has a formal alliance program	1	2	3	4	5	6	7	4
Alliances are discussed regularly by upper management	1	2	3	4	5	6	7	5
Alliances are discussed regularly by myself and other staf f	1	2	3	4	5	6	7	6
Alliances are viewed as important by our endusers	1	2	3	4	5	6	7	7
Our offering is significantly better because of alliances	1	2	3	4	5	6	7	8
The perceived quality of the end product is better due to alliances	1	2	3	4	5	6	7	9
Marketing and sales drives our alliance work	1	2	3	4	5	6	7	10
Finance drives our alliance work	1	2	3	4	5	6	7	11
All parts of our organization strive towards the same alliance goal	1	2	3	4	5	6	7	12
I have a clear grasp of the critical success factors for an alliance	1	2	3	4	5	6	7	13
My company has formally defined the critcal success factors for alliances	1	2	3	4	5	6	7	14
We are involved with alliances for Market reasons (i.e. Increased market share)	1	2	3	4	5	6	7	15
We are involved with alliances for ef ficiency reasons (i.e. Do things right)	1	2	3	4	5	6	7	16
We are involved with alliances for improved ef fectiveness (i.e. Do the right things)	1	2	3	4	5	6	7	17
We are involved with alliances for Production reasons	1	2	3	4	5	6	7	18
We are involved with alliances for Development reasons	1	2	3	4	5	6	7	19
We have clear measures to evaluate alliance success	1	2	3	4	5	6	7	20
I regularly receive reports on alliance performance	1	2	3	4	5	6	7	21
In my opinion we have more success than failure with our alliances	1	2	3	4	5	6	7	22
The number of our alliances will increase over the next 3 years	1	2	3	4	5	6	7	23
The number of our alliances will decrease for over the next 3 years	1	2	3	4	5	6	7	24
Inter-organizational software is needed to control an alliance	1	2	3	4	5	6	7	25
Convergence of the market drives alliance building	1	2	3	4	5	6	7	26
We have an active alliance learning process in place	1	2	3	4	5	6	7	27
We have dedicated functions that support alliance work	1	2	3	4	5	6	7	28
We externalize the alliance knowledge we have gained	1	2	3	4	5	6	7	29
Trust is more important than legal agreements to alliance work	1	2	3	4	5	6	7	30
Clear goals is a success factor in alliance work	1	2	3	4	5	6	7	31
Company reputation is an important factor in alliance work	1	2	3	4	5	6	7	32
Governance and control are important factors in alliances	1	2	3	4	5	6	7	33
The size of the alliance partner is a successfactor	1	2	3	4	5	6	7	34
Having supporting software is a successfactor for alliance work	1	2	3	4	5	6	7	35
Short term profitablility isan important factor for alliance work	1	2	3	4	5	6	7	36

Using numbers 1-7, 7 being the most important rank the following alliance related words in their order of importance. (There are more options than you have numbers)

Learning process	
Dedicated functions	
Externalizing knowledge	
Trust	
Legal agreements	
Clear goals	
Company reputation	
Governance and control	
The size of the partner	
Supporting software	
Short term profitablility	

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