



A knowledge integration approach within acquisitions

How to deal with innovative acquired firms?

“The winners of tomorrow’s market place will be the masters of knowledge management”

(Bresman et al., 1999 p.440).

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Executive summary

The aim of this study is to contribute to two pending issues. First, this study aims to contribute to the field of M&A which is still characterized with high failure rates in meeting the intended synergies. In this area, knowledge integration is still in its infancy while the potentials of the management of knowledge is highly acknowledged as such. The second issue this study addresses is the paradox between the interaction which is needed to obtain knowledge integration and remaining the acquired company's innovativeness. These issues are both captured in the main research question: *How could Philips facilitate the knowledge integration process between innovative acquired firms and Philips in order to continuously benefit from the acquired company its innovativeness?*

In order to answer this question an exploratory and descriptive study are executed by an embedded multiple-case approach which has been carried out with a cross-sectional mixed method design, consisting of a survey-method and a cross-case analysis. First a literature research led to the development of a conceptual model. Since the existence of the NVI department within Philips 43 acquisitions have been executed. However, this study first selection focused on the acquisitions since 2009 to enhance the availability of the people concerned – a number of 23 acquisitions. The survey served as case selection tool after which six exemplar and deviant cases are chosen. Thereafter, 21 interviews have been conducted among internal Philips employees –PMs, BI leaders, HR leaders, R&D leaders and when applicable the Philips GM- who were involved in the acquisition. These perspectives are supplemented by an interview from the M&A team, a Business Improvement Director and CEO's from the acquired companies – if applicable and available. Data-analysis started with data reduction by the coding of interviews and developing data displays by capturing all coded data and quotes in a matrix table. Using this data displays, a descriptive within-case analysis and a cross-case analysis were executed.

This study provides an extensive overview the different KM processes and specified these processes on the usage within acquisitions which has led to a novel KI process model, since literature did not met the complex environment of M&A. This conceptual model – containing the stages identification, retention, transfer, application and creation- served as basis and has been complemented by organizational learning variables –i.e. knowledge and experience- and integration strategy determinants – i.e. target and buyer intention and PMI strategy. One of the most remarkable findings regarding the knowledge integration process is that this process is a static as expected in literature. The different stages are interlinked with each other. The retention and creation stage are explicitly added to streamline the innovative capabilities of the acquired firm. The retention stage its main goal is to continue the focus on the business while at the same time preparing for transferring knowledge. The creation stage aims to continuously explore new knowledge by hiring new employees with similar capacities, pursuing an innovative roadmap and external relationships with universities and R&D centers.

Nevertheless, all these stages require involvement of organizational functions – such as HR, R&D, Finance – and all acquisition integration phases – pre-combination, combination and post-combination- and appointing a Philips employee as KI manager should manage these processes to successfully

accomplish knowledge integration. During DD a pre-assessment should be executed together with a gap-analysis of the both company's knowledge bases but also the intentions and expectations should be clear. The PMI strategy has to be adjusted to the outcomes. By first focusing on the activities that are prerequisite to integrate – such as Finance, HR - to perceive the amount of coordination and direction from Philips, resources can be used to fulfill these activities and in a later stage focus on other integration activities to prevent from business disruption.

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ABBREVIATIONS

BI	Business Integration
CEO	Chief Executive Officer
CFO	Chief Financial Officer
COO	Chief Operational Officer
DD	Due Diligence
GM	General Manager
HR	Human Resources
IT	Information Technology
KI	Knowledge Integration
KM	Knowledge Management
M&A	Mergers and Acquisitions
MT	Management Team
NVI	New Venture Integration
PM	Program Manager
PMI	Post Merger Integration
R&D	Resource and Development

Chapter 1 Introduction

This first chapter provides the existing rights of the research executed and the choices made for this specific topic. First it explains the research context in section 1.1. which is followed by the research objective and are the research –sub- questions stated in section 1.2.

1.1. Research context

Acquisitions are a crucial and valuable business strategy for non-organic (corporate) growth and is defined as “*one firm buying another for the intent of gaining access to the acquired firms’ technology*” (Schilling & Steensma, 2002). Adding to this resource based view of acquisitions, Haspeslagh & Jemison (1991) also mention the strategic objective of acquisitions; strategic goals can be achieved more effectively in terms of time and money. Combination of firms helps a firm to move quickly into a new market or product space or pursue a strategy that would otherwise be too costly, risky or technologically advanced to achieve on its own. From an entrepreneurial perspective deals can be made out of an opportunistic perspective in order to jump into a perceived chance, or they can be made from a defensive viewpoint when deals are made to protect market share (Marks & Mirvis, 2011).

Even though acquisition strategy has been employed for several years and studied by countless scholars, a large number of acquisitions fail to produce the results promised (Hitt, King, Krishnan, Schijven, Shimizu, & Zhu, 2009; King, Dalton, Daily, & Covin, 2004). From the last 30 years of research only a modest improvement is seen in the M&A success rate (Marks & Mirvis, 2011). Relatively high failure rates of M&A ranging from 50% (Cartwright & Price, 2003) to 83% of all deals failing to deliver shareholder value and 53% actually destroyed value (Cartwright & McCarthy, 2005). These numbers demonstrate that pursuing and managing M&A – in a way that shareholder value is delivered and estimated synergies are met – remains an extremely difficult task and the process must be very carefully designed and implemented (Hitt, King, Krishnan, Schijven, Shimizu, & Zhu, 2009). Despite of this huge chance to fail in succeeding synergy performances acquisitions remain ongoing popular according to the numbers of Bloomberg (2011). Compared to the same period in 2010 an increase of 15% of the total M&A deal volume –till the 3rd quarter of 2011 to \$1,78- billion emerged. One of the companies acquiring firms is Philips, with a total purchase price of more than €500 million in 2011.

1.1.1. Philips

Philips is founded in 1891 by father and sons Philips with the intention to meet the growing demand for light bulbs created by the commercialization of electricity. Still lighting is one of the sectors in which Philips is very active, nowadays complemented by Healthcare and Consumer Lifestyle. Philips is one of the largest global diversified industrial companies with a sales force of EUR22.6 billion in 2011. With a workforce of around 121,000 employees, the company is present in 100 countries worldwide. Innovation capability is core. This is shown by its mission ‘Improving people’s lives through meaningful innovation’ and it’s R&D expenditures of EUR1,6 billion (2012). With the ambition to be a global leader in health and well-being and to become the preferred brand in the majority of the chosen markets

growth is essential (www.philips.com). One way to obtain this strategy is with non-organic growth, or acquisitions (Haspeslagh & Jamison, 1991).

1.1.1.1. New Venture Integration

As has become clear, managing acquisitions and its knowledge management in particular remains a very difficult task and requires a disciplined approach (Crosby, Horgan, & Leman, 2006). In order to support the successful integration of newly acquired companies, Philips has established the New Venture Integration department (further referred to as NVI). Since its foundation in 2007, 43 acquisitions have been accomplished, in which its mission has been to support the sectors -i.e. the businesses that actually acquire- to realize their acquisition value targets and advise the Board of Management to improve the effectiveness of the integration process (www.philips.com).

The use of a small core team with program managers with broad business and M&A process experience and functional leaders for HR & Culture, Communication, IT, Supply management and Finance & Accounting, NVI builds a competence center by capturing, sharing and developing integration expertise. The NVI department works closely with the M&A department, which is more focused on providing execution support for the sectors in acquisitions, investments and divestments. Appendix I shows the Philips acquisition process, Appendix II illustrate the roles within this integration process and Appendix II reveals the NVI organizational chart.

The disappointing performances of Philips in the past years have led to some changes in the long-term vision. Via the 'Accelerate program' Philips invests in growth in which structural change will be attained by focusing on operations, reducing the overhead costs and implementing a new corporate culture. Growth will be accomplished through increasing the investments in innovation and acquiring new customers, while an entrepreneurial spirit will be the heart of the transition of the corporate culture (www.philips.com). Philips also realizes the importance of remaining innovative and entrepreneurial, especially in the current economic climate,

1.1.2. Innovative acquired companies

Strategic management literature recognizes that innovation is a critical enabler in order to create value and sustain competitive advantage in the increasingly complex and rapidly changing environment (Madhavan & Grover, 1998; Subramiam & Youndt, 2005) by being able to develop new capabilities which quickly adapt to the dynamic market (Montes et al., 2004). In this value creating process employees' knowledge, expertise and commitment are seen as key factors in the value creation process (Youndt, Snell, Dean, & Lepak, 1996). Several studies underline the relation of knowledge management and innovation (Subramaniam & Youndt, 2005). During the acquisition process external knowledge is obtained often will be transferred from and to the acquiring company. However, integrating is not always needed. Grant & Badenfuller (2004) differentiate between knowledge accessing and knowledge acquiring. Knowledge accessing refers to make use of each other's knowledge base but without the intention to learn this knowledge. Knowledge acquiring on the other side obtains the objective that knowledge has to be exploited and learned within the company so it can be re-used.

“We have gone from an industrial age in which the most important resource was capital, into an age in which the most critical resource is knowledge” as Bresman et al. (1999) already stated. Acquisitions are seen as a strategic way to obtain external knowledge (Van de Vrande, Vanhaverbeke, & Duysters, 2011).

However, after acquisition acquired companies are dependent of the acquiring company. The degree of strategic interdependence and organizational autonomy depend on how the acquiring company needs certain capabilities of the acquired company (Haspeslagh & Jamison, 1991). For acquired companies to continue the business as they did before almost never occurs. Processes, systems and financials have to be replaced into the processes, systems and financials of the acquiring company.

This also leads to mixed results for the effect of acquisitions on overall innovation outputs (De Man & Duysters, 2005). Agency problems, reduction in managerial commitment to innovation, and the absorption of managerial energy in the acquisition integration process at the expense of routine management have been mentioned as possible explanations for the negative impact of acquisitions on acquiring firms (Hitt et al., 1991, 1996; Ahuja & Katilla, 2001). Another cause is the possible leave of critical employees. As Bresman et al. (1999) already noticed is most critical knowledge apparent in humans and also Schuler & Jackson (2001) stresses the importance of unique company-specific resources, which is in this case the specialized (tacit) knowledge and skills of acquired employees. Leaving of people possessing this knowledge, the so-called key persons, contributes to the distortion of innovation capabilities. Puranam et al. (2009) even state that post-merger integration can destroy those innovative capabilities that made the acquired organization attractive in the first place.

The difference in firm size is acknowledged mediating affecting on innovation performance (Zou & Ghauri, 2008; Lichtentaler, 2009) but its significance in knowledge transfer isn't proven (Bresman, Birkinshaw, & Nobel, 1999). However, Alvarez & Barney (2001) mention the risks of innovative firms which are in alliances with large firms thereby focusing on learning. When focusing on the differences between small and large firms, these risks can also be applied on acquisitions. Especially when the only resource that brought the firms together is a new technology there are two things about to happen. First, when the new technology has market potential the large firm will be able to realize this in a faster way. Second, innovative firms are often unable to grow and prosper (Alvarez & Barney, 2001). The advantage for innovative firms is to get access to a giant amount of new resources, while the large firm gets access to the new technology. The learning cycles differ, for a large firm it is relative easy to learn about a new technology but for small innovative firms is much harder, if not impossible, to be able to fully benefit from the large firms resources without destroying its own (Alvarez & Barney, 2001; Hitt, Hoskisson, Johnson, & Moesel, 1996).

This study intends to address two upcoming issues. First, since knowledge is acknowledged as a firm's main asset to gain competitive advantage acquiring firms often are tempted to absorb this firm-specific knowledge. However, when this knowledge is absorbed, no unique knowledge is left in the company after which the acquisition has less value and knowledge combination potential. In creating synergies, knowledge should not be absorbed but integrated so that Philips can profit from the acquired company's knowledge but also to give the acquired company the chance to benefit from the knowledge base of Philips. This mutual interaction is conceptualized by knowledge integration.

Nevertheless, this knowledge integration requires interaction between both companies which

makes them interdependent. This interdependency which is needed to share knowledge between Philips and the acquired company increases the time employees of acquired companies need to meet all these new objectives and structure which disrupts the time employees spend to innovation and even might disrupt the innovative capability of which the company is bought for. The amount of organizational autonomy of the acquired company is limited to ensure managerial control and prevent fraud, illegal actions and other risks which can negatively affect Philips. This friction, between organizational interdependency and organizational autonomy, does definitely not stimulate organizational output. This decreases the chance to create synergies by combination of the knowledge bases leading to the long-term value creation intended by buying another company.

1.2. Research objective and questions

Therefore both for scientific perspectives as for Philips itself it is necessary to research the possibilities of maintaining knowledge in acquired companies while staying innovative and entrepreneurial. This leads to the following research question and sub questions.

How could Philips facilitate the knowledge integration process between innovative acquired firms and Philips in order to continuously benefit from the acquired company its innovativeness?

1.2.1. Definitions

Knowledge integration process: The process in which both companies effectively profit from each other's critical knowledge in order to stimulate innovativeness.

Innovative acquired firms: One firm buying another for the intent of gaining access to the acquired firms' innovative capabilities (Schilling & Steensma, 2002).

Innovativeness: The organizational attitude to continuously explore and exploit opportunities to increase organizational financial performance by meeting and creating market needs.

1.2.2. Sub questions

1. How should the knowledge integration process be structured and executed according to literature?

This question will dive into the current literature to discover what already has been said and defined on the area of knowledge integration management in acquisitions. After discussing the applicable theory a conceptual framework will be developed which will serve as basis for the questionnaire of the interviews.

2. How does Philips currently deal with the knowledge integration process in technology-driven acquisitions?

This question aims to give an answer on how Philips currently deals with knowledge integration within technology-driven acquisitions by conducting interviews. To reveal patterns and discover success factors and pitfalls a descriptive case analysis and a cross-case analysis will be used.

3. What could Philips improve in order to facilitate an effective knowledge integration process within technology acquisitions?

By answering this question the success factors and pitfalls will be combined with the theoretical findings to discover areas of improvement.

1.3 Structure of the report

This report is organized as follows. An introduction of the research context, objectives and questions is provided in this section. The second chapter is devoted to the introduction of the most important theoretical concepts and development of a conceptual framework. The methodological framework of this research is discussed in chapter three. Chapter four presents the most important findings in a descriptive analysis followed by a cross-case analysis. The last chapter provides conclusions and recommendations.

Chapter 2 Theoretical framework

In this section the existing literature will be explored. Many studies have elaborated on the subjects' mergers and acquisitions (further referred to as M&A) and knowledge management independently. Therefore first an overview will be given regarding the most important literature of both M&A – section 2.1.- and knowledge management –section 2.2.-, which will be followed by integrating both frameworks together into a proposed knowledge integration process model for acquisitions. This model will be explained in section 2.3. and contains the identification, retention, transfer, application and creation of knowledge. Per phase mechanisms will be revealed which together eventually leads to a conceptual knowledge integration framework.

2.1. M&A process

M&A and its processes have been studied by numerous researchers over the last thirty years. As a result, many different frameworks for the M&A process have been developed in order to capture the most significant elements. Typically, the M&A process is described in terms of different phases (Marks & Mirvis, 2003). Certain authors – for example (Cartwright & Cooper, 2000) and (Appelbaum, Gandell, Yortis, Proper, & Jobin, 2000)– divide the M&A process in pre-merger (planning), during-the-merger (realization) and post-merger (integration) phases. This study adapts the model of Marks & Mirvis (2010) that clarifies the M&A model by using the following three phases: pre-combination, close and post-combination (see Figure 1).

In the pre-combination phase, the business, corporate development or M&A department starts with identifying possible target firms. This process depends on the strategic objectives of the business and to what extent the strategic goals can be achieved more effectively in terms of time and money



Figure 1: The M&A process: Pre-combination – combination – post-combination (based on Marks & Mirvis, 2010).

(Haspeslagh & Jamison, 1991). After approval from top management the target is investigated more intensively by means of Due Diligence (further referred to as DD). This process aims to specify whether a possible acquisition results in synergies and creates value. Although Due Diligence is often very financially focused, Shimizu et al. (2004) argues the DD phase should focus not only on the financial

health of a firm but also provide a profound examination of a firm's intangible assets and resource (Shimizu, Hitt, Vaidyanath, & Pisano, 2004).

The combination phase involves the actual closing of the deal, a kick-off event and the first period of essential integration activities (Marks & Mirvis, 2010). Usually these integration activities starts immediately after the deal close, however this depends on the integration strategy that is pursued (Haspeslagh & Jamison, 1991; Marks & Mirvis, 2010). In this study, a division of integration activities is made as it is widely acknowledged that the first 100 days after close are critical in that it impacts the remainder of the integration process (Marks and Mirvis, 2010; Schweiger and Goulet, 2000, Bartel et al., 2007; Epstein, 2004).

Accordingly, the post-combination phase starts after the first hundred days of integration activities are completed and ends at integration closure, which can be within a few months or even a few years (Marks and Mirvis, 2010). The importance of this phase has been stressed by numerous authors, who state that this is the period where all value creation takes place (Haspeslagh & Jemison, 1991; Birkinshaw et al., 2000; Marks and Mirvis, 2010). Specifically, although the degree of success of an acquisition is formed by initial conditioning factors – such as buyer strategy, price paid, and organizational fit – the extent to which that potential is realized is determined by the management of the post-combination integration process (Stahl & Mendenhall, 2005).

Essential in an M&A process is to complete an evaluation at the end of the post-combination phase including an assessment of the realization of proposed synergies and identification of lessons learned in order to instruct integration efforts during future M&A activity (Hoogendoorn, 2007).

2.1.1. Integration strategies

Since value creation is seen as the core task of any acquisition and will combine unique firm capabilities, capability transfer is necessary. Such capability transfer –or in this study, tacit knowledge transfer– requires interdependencies between both organizations. This interdependence disturbs the company in their own way of doing things and managerial resistance than is not unusual. Dependent of the strategic intention of the acquisition, this interdependence have to be taken into account together with its consequences. On the other side it is essential to preserve the strategic capability that is to be transferred, such as innovative capabilities. Whereas interdependence disturbs firm's activities, organizational autonomy preserves boundary protection. This paradox is especially present in acquisitions of which the needed strategic capabilities are resided in people or groups of people (Haspeslagh & Jamison, 1991) and clearly appoints the mere challenge of this study.

The structure of the organization is important in leveraging technological architecture between both companies. Collaboration and sharing of knowledge often are restricted to organizational boundaries and therefore can inhibit effective knowledge management across the organization. It is important organizational structure is designed for flexibility so that they encourage sharing and collaboration across boundaries (Gold, Malhotra, & Segars, 2001). In case of acquisitions two firms have to get linked to each other. The level of integration depends on the needs of interdependence and organizational autonomy which results in four types of integration approaches (Haspeslagh & Jamison, 1991) which will determine the structure of the combined firms, summarized in Figure 2.

- Companies without intention of integration and creating value through anything except financial transfers, risk-sharing, or general management capabilities are defined as holdings. The strategic rationale of acquiring this company is for financial reasons (Haspeslagh & Jamison, 1991).
- When chosen for absorption acquisitions are undertaken for the objective to ultimately dissolve the boundary between both units. The strategic task of the company requires a high degree of interdependence in order to create the expected value but has a low need for organizational autonomy to achieve that interdependence. Its strategic rationale is to strengthen the domain (Haspeslagh & Jamison, 1991).
- The preservation strategy is used when the primary task is to keep the source of the acquired benefits intact, because deterioration in the acquired company's way of managing, practices, or even motivation would endanger success. This requires a high need of autonomy and a low need for interdependence among the firms. Its goal is to explore new domains by learning from each other and there is a little exchange of resources (Haspeslagh & Jamison, 1991).
- The last strategic option is the choice for symbiosis. This is also the most challenging one because the need of both interdependence and organizational autonomy. The two organizations first will co-exist when slowly becoming interdependent. The conflicting needs for strategic capability transfer, including knowledge, and the maintenance for its own autonomy and culture will eventually become less when the acquired company itself changes its own organizational practices to adapt to the new situation. The integration process will take more time than the other strategies, because both companies have to find their ways in adjusting to the new situation. The goal when opting for this strategy is to expand the domain (Haspeslagh & Jamison, 1991).

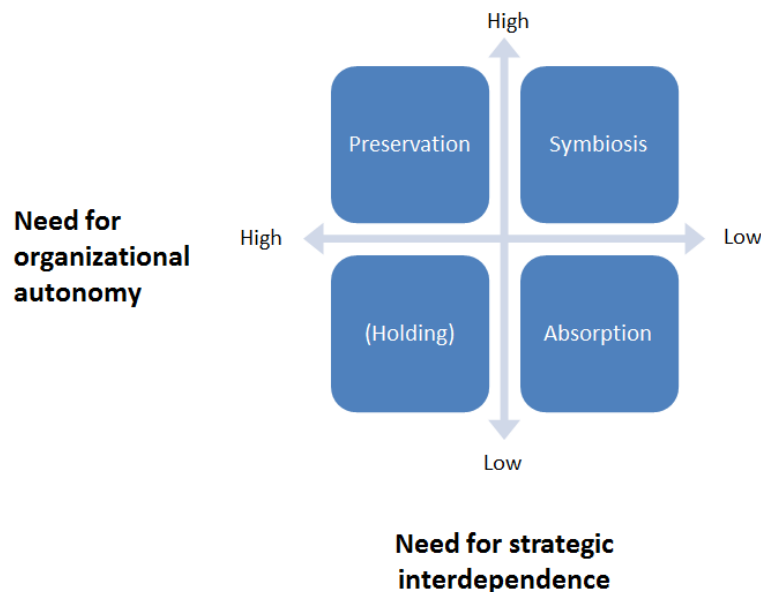


Figure 2: Types of acquisition integration approaches (adopted from Haspeslagh & Jamison, 1991).

Both preservation and symbiosis integration strategies are designed as enhancing knowledge integration between the both companies.

As said before integrations often fail to succeed. Depending on the kind of strategy used paradoxes exist. In the case of preservation people can think they are independent. This independency will prevent the acquiring company from learning from its business nature, industry or technologies while preservations are meant to get to know a new domain (Haspeslagh & Jamison, 1991).

Within symbiosis acquisitions the main trap is trying to integrate too fast, like absorption, which results in destroying value. On the other hand, preserve the company to long and people are not willing to share their knowledge anymore. Managers of both companies thus have continuously adapting to and learning from each other in balancing (Haspeslagh & Jamison, 1991).

When specifically focusing on multinationals acquiring relative small technology firms some sort of interdependence and coordination is necessary, especially according to Finance and Supply Management perspectives (internal documents).

From the perspective of Finance & Accounting:

- As a management control system; by following the General Business Principles (GBP) to prevent fraud, unfair competition etc.
- Obtain economy of scale (Henderson & Cockburn, Scale, scope and spillovers: The determinants of research productivity in drug discovery, 1996); buying advantage, buyer power etc.
- In sync with the corporate annual report.

From the perspective of Supply Management:

- Enhancing efficiency by using 'best in class' processes
- Cash-flow improvements
- Risk management; to prevent sustainability issues, in accordance with the GBP

While it seems coordination from the acquiring company is necessary, acquisition integration often entails far reaching disruption, involving significant managerial attention and transaction costs (Hitt, Hoskisson, Ireland, & Harrison, 1991; Haspeslagh & Jamison, 1991; Ahuja & Katilla, 2001). This disruption is most likely in the set of routines that are closest to the innovation area, which thus will have a negative impact on the innovation output of the acquiring firm (Ahuja & Katilla, 2001).

2.2. Knowledge management

In a world which becomes closer and more reachable for all companies, knowledge becomes tremendously important. Knowledge is viewed as strategically the most important resource of the firm that forms a competitive advantage (Zou & Ghauri, 2008). Managing this knowledge is necessary but nevertheless hard to establish. Since recognizing many scholars have elaborated on this subject, referring to it as knowledge management. Knowledge management (further referred to as KM) is an approach to adding or creating value to an organization by more actively leveraging the know-how and expertise resided in individual minds (Ruggles, 1998; Scarbrough, 2003; Dalkir, 2005).

Identifying the knowledge which is of value and critical for the organization is at risk, through retirement, turnover, and competition using the intellectual capital (Dalkir, 2005). Knowledge can be divided in two groups; tacit and explicit knowledge. Knowledge is explicit when comprised only in written documents and codified information (Cummings & Teng, 2003) and is not at risk within organizations. On the other hand, there is tacit knowledge which is non-verbal, intuitive and unarticulated. This kind of knowledge is hard to communicate and is deeply rooted in action, involvement and commitment within a specific context (Nonaka & Takeuchi, 1995) and often resides within individuals (Cummings & Teng, 2003). Particularly tacit knowledge secures competitive advantage for the firm, because of its difficulty to imitate by competitors (Grant, 1996) which therefore explains the focus of this study.

The path-dependent nature of knowledge can best be captured in a process. Process cycles explain the routes followed to transform into a valuable strategic asset for the receiving organization (Dalkir, 2005) and thus will serve as theoretical foundation of this study since no knowledge integration process for acquisitions yet exists. There is a high variety of knowledge processes, of which Table 1

Table 1. Overview of well-known management process cycles and number of citations

Knowledge stages	Nonaka & Takeuchi (1995)	Wiig (1993)	McElroy (1999)	Bukowitz & Williams (2003)	Zack (1996)	Dalkir (2005)	Carlile & Rebentisch (2003)	Argote & Miron-Spektor (2011)
	Socialization	Creation	Individual and group learning	Get	Acquisition	Capture/creation	Storage	Creation
	Capture	Sourcing	Knowledge claim validation	Use	Refinement	Sharing/dissemination	Retrieval	Retention
	Dissemination	Compilation	Information acquisition	Learn	Store/retrieve	Acquisition/application	Transformation	Transfer
	Internalization	Transformation	Knowledge validation	Contribute	Distribution			
		Dissemination	Knowledge integration	Assess	Presentation			
		Application		Build/sustain				
		Value realization		Divest				
Citations Science Direct	25792	718	14	385	129	367	232	19

source not found. displays the most knowledgeable ones.

First, the integrated process cycle of knowledge acquisition, knowledge sharing and knowledge application (Grant, 1996; Dalkir, 2005) which is provided after thorough analysis of all knowledge process cycles (Dalkir, 2005). The acquisition of knowledge is about what knowledge has to be acquired (Huang & Newell, 2003), knowledge sharing involves the transfer of knowledge between one firm to the other firm (Zou & Ghauri, 2008; Bresman, Birkinshaw, & Nobel, 1999) and the application of knowledge is applying the newly acquired knowledge into the own organization (Dalkir, 2005).

Secondly, Carlile & Reber (2003) opted for a knowledge transformation cycle, including storage, retrieval and transformation of knowledge which combines the current perspectives with organizational learning (Huber, 1991) and the knowledge transfer model (Hargadon & Sutton, 1997).

Third, Bukowitz & Williams (2000) describe a KM process framework that outlines how organizations generate, maintain and deploy a strategically correct stock of knowledge by get, use, learn, contribute, assess, build/sustain, divest.

Fourth, Argote & Miron-Spektor (2011) looked from the perspective of organizational learning and recognized knowledge creation, retention and transfer as main outcomes. They aim to depict an ongoing cycle through which task performance experience is converted into knowledge that in turn changes the organization's context and affects future experiences.

2.2.1. Knowledge integration in acquisitions

In an age in which knowledge has become a firm's most critical resource in order to gain competitive advantage, this is increasingly done by innovative recombination of knowledge (Bresman, Birkinshaw, & Nobel, 1999). Knowledge is viewed as strategically the most important resource of the firm that forms a competitive advantage (Bresman, Birkinshaw, & Nobel, 1999). The acquisition of a firm is a quick way to get access to the firm's knowledge base, but what many firms have discovered is that transferring and utilizing this knowledge from the acquired company to its own company can be a daunting task (Bresman, Birkinshaw, & Nobel, 1999). The acquiring firm will thus potentially expand its knowledge base and increase its innovation output by providing economies of scale and scope in research and by enhancing the acquirer's potential for inventive recombination (Ahuja & Katilla, 2001).

Since technology, covering know-how and know-what (Kogut & Zander, 1992) often is tacit this is argued to be the hardest to replicate for competitors (De Man & Duysters, 2005). Therefore it is extremely important especially acquisitions acquired for innovative and technology reasons integrate their knowledge. Other reasons for acquisitions can be found in obtaining access to distribution channels, gain entry into new markets, or to obtain financial synergies or market power (Haspeslagh & Jemison, 1991). However, since the focus of this study is the management of knowledge in innovative acquired companies, obtaining technological knowledge and developing technical capabilities are important motives for this kind of acquisitions (Ahuja & Katilla, 2001). Technological capability is reflected in the extent of a firm's internal expertise that enables it to understand and use the knowledge transferred from an external source -i.e. acquisitions- (Bierly III, Damanpour, & Santoro, 2009). In collaboration, this knowledge has to be either accessed or acquired which depends on the intention to learn this knowledge or only use it (Grant & Baden-Fuller, 2004). This will also influence the integration strategy of the acquisition. Accessing requires much more interdependency than the acquisition of knowledge does

(Haspeslagh & Jamison, 1991).

Nevertheless, when opting for inventive knowledge recombination to gain competitive advantage (Ahuja & Katilla, 2001) companies continuously have to renew strategically (Crossan, Lane, & White, 1999). This strategic renewal requires organizations to explore and learn new ways while at the same time concurrently exploiting what they have already learned (March, 1991). Either accessing or acquiring knowledge, it has to be transferred from one firm to the other firm in order to create value (Haspeslagh & Jamison, 1991). Many scholars studying this knowledge transfer process even state that the ability to learn is the key to success within alliances and joint ventures (Ahn, Baughn, Hang, & Neupert, 2006; Inkpen & Crossan, 1996) but has not yet been researched in terms of acquisitions (Shimizu, Hitt, Vaidyanath, & Pisano, 2004). Organizational learning plays a crucial role in creating value by acquiring new knowledge. Key learning processes in obtaining external acquired knowledge are explorative, transformative and exploitative learning (Argote & Miron-Spektor, 2011; Lichtentaler, 2009). These complementary processes have proved to stimulate innovation and organizational performance (Lichtentaler, 2009).

2.3. Proposed model

Combining the learning processes derived from organizational learning -i.e. exploring and exploiting- with the knowledge management process cycles and applying it to acquisitions leads to the following Figure 3. This process cycles is mainly based on Dalkir (2005), since he integrated all well-known KM cycles into one, distilling knowledge to be identified, understood and used. This leads to the knowledge integration steps of identification, transfer and application. Also the process cycle of Argote & Miron-Spektor (2011) plays a huge role since they specifically took the perspective of organizational learning. Therefore, the stages will be complemented by creation and retention. The transfer stage is overlapping in both models. By applying these stages to the acquisition process the following steps are identified.

First, it is necessary to gain new knowledge from acquired companies (knowledge identification). Because companies have to continue their business and remain innovative this knowledge has to be stored within the organizational memory (knowledge retention) after which it can be transferred and shared within the acquiring firm (knowledge transfer) and applied and commercialized (knowledge application). For both firms to keep up with the knowledge cycle, knowledge creation is the last and circle closing step in order to keep continuous learning and stimulating innovation. However, the circle loops back to knowledge transfer and not to knowledge identification because the critical knowledge is already identified and retained and creating new knowledge

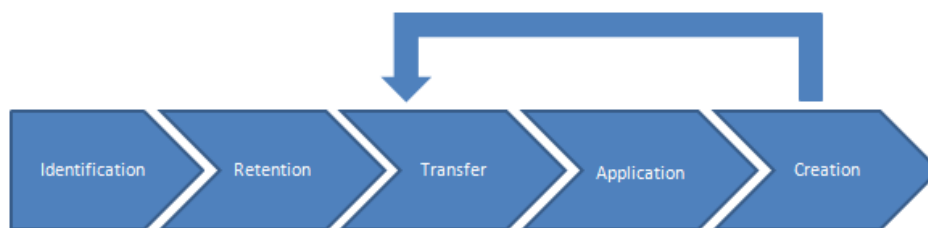


Figure 3 Knowledge management process cycle for continuous learning in acquisitions

2.4. The knowledge process cycle of acquisitions

This chapter will elaborate the different stages of the proposed knowledge integration process cycle. Each stage will be handled; accordingly identification, retention, transfer, application and creation, and mechanisms will be added to transform stages in practical actions. Since the knowledge integration process cycle only serves as foundation, this chapter will conclude with a conceptual framework which is the basis for the empirical research.

2.4.1. Knowledge identification

Daft (2005) refers to knowledge identification as *“the subsequent identification of existing internal knowledge and know-how within the organization and/ or external knowledge from the environment”*. This is supported by Zou & Ghauri (2008) who elaborated on the knowledge acquisition and learning processes in international contexts. These authors focus on how the acquiring firms’ obtain knowledge and how it influences the success or failure of international acquisitions, ending up with a three stage process consisting of knowledge assessment, knowledge sharing and knowledge assimilation. Knowledge assessment here is defined as the search for what knowledge and capabilities have to be acquired by the firm, which is continued by sharing and assimilating (Zou & Ghauri, 2008). In this study we split these stages and take them into the complete knowledge management process cycle of acquisitions.

The identification of knowledge is the search for new knowledge (own definition, based on Grant & Baden-Fuller, 2004; Zou & Ghauri, 2008). From the organizational learning perspective this has two potential consequences: 1) by absorbing the acquired company’s strategic knowledge base, the mother firm gets access to new valuable sources of knowledge (i.e. learning of new technology), and 2) access to (financial) resources of the mother firm, allowing for rapid commercialization and development of new products and also the learning of technology R&D (Alvarez & Barney, 2001).

External knowledge exploration describes the identification of knowledge from external sources (Lane et al, 2006) and can be viewed simultaneously with the first two steps of absorptive capacity, knowledge identification and assimilation (Zahra & George, 2002). When the need for knowledge is recognized, many firms establish a scanning mechanism in order to recognize external knowledge sources (Cohen & Levinthal, 1990; Lichtentaler & Lichtentaler, 2009). Especially in turbulent and dynamic environments external knowledge exploration proves its importance. Rapidly changing markets make current products obsolete (Eisenhardt & Martin, 2000) and firms have to rely on exploratory learning to arrive at innovations that depart from existing technologies and markets (Jansen, Van den Bosch, & Volberda, 2006). Exploratory learning can help firms by adapting to changing environmental conditions by creating new products and meeting the needs of emerging markets (Lichtentaler & Lichtentaler, 2009).

2.4.1.1. Mechanisms

Most critical knowledge is apparent in humans (Bresman, Birkinshaw, & Nobel, 1999) and lies in (tacit) knowledge deeply rooted in individual action and involvement within the organizations (Nonaka I. , 1994). Not all employees possess knowledge and skills that are of strategic importance. Assessment of searching for where the knowledge is kept therefore is necessary, and can be conducted in ways as through communication in the pre-acquisition phase, the use of external consultants and the observation

of articulated knowledge (Zou & Ghauri, 2008).

When going across boundaries, cultural divergence can be problematic in acquiring knowledge (Bhagat, Kedia, Harveston, & Triandis, 2002). Assessing the firm's complementary knowledge can be extremely beneficial in deciding whether the future operations will work, is even rather essential (Finkelstein & Halebian, 2002), and can facilitate communication between managers from different divisions and organizations. Without having a complementary knowledge starting base it will be hard to assimilate knowledge effectively (Lichtentaler & Lichtentaler, 2009) and being able to understand it (Zahra & George, 2002). Both of these assessment activities, such as meetings, observations, reports and consulting lead to more effective integration management and facilitate acquisition success (Zou & Ghauri, 2008). Besides assessing, length experience and learning-by-doing is needed when successfully acquiring tacit knowledge (Ranft & Lord, 2000).

As explained in the introduction, the acquisition of small, entrepreneurial firms by large multinationals may lead to disrupting entrepreneurial firm's performance and innovation output (Alvarez & Barney, 2001) (Puranam, Singh, & Chaudhuri, 2009). For both firms to profit from the acquisition and make the integration work, a pre-combination assessment should define if the entrepreneurial firms are capable of generating several technology streams (Alvarez & Barney, 2001). As well as the CEO has to be able to learn large-firm organizational capabilities together with understanding the requirements how to successfully integrate the acquisition (Alvarez & Barney, 2001). If not, replacement of the CEO and other members of the management team might be an option.

2.4.2. Knowledge retention

Argote and Miron-Spektor (2011) perceived knowledge retention as the stock and flow of knowledge within the organization's knowledge base. The departure of an acquired company's executives and their corresponding knowledge and skills, is thought to be one important determinant of poor post-acquisition performance (Cannella & Hambrick, 1993). The knowledge base has to be enhanced; in effectively combining both firms' knowledge bases are needed to create new output.

Strategic skills and knowledge are not only exhibited in the management team, but also resides in employees elsewhere in the organization, those who possess critical individual expertise or those who in combination possess valuable team-or group based capabilities, promoting successfully transfer of technologies and capabilities eventually determining the overall success of the acquisition (Ranft & Lord, 2000).

From the organizational learning perspective, retention is captured as learning process, necessary to connect exploratory and exploiting learning (Lichtentaler, 2009; Lane et al., 2006). Internal knowledge retention is a result of the need for maintaining knowledge over time (Garud & Nayyar, 1994). External knowledge retention refers to knowledge that is maintained in a firm's inter organizational relationships, e.g. alliances (Gulati, 1999). Exploratory and exploitative learning itself are not sufficient in sustaining superior performance (Lichtentaler & Lichtentaler, 2009). In avoiding losing skills and routines and innovative capacity, firms must actively manage knowledge retention to keep acquired knowledge alive (Lane, Koka, & Pathak, 2006); (Marsh & Stock, 2006). The maintained has to be reactivated by internalizing it again through experience (Argote, McEvily, & Reagans, 2003). Since

experience is housed in people and groups (Chen & Huang, 2009) retention of these key persons which possessing knowledge seems critical.

2.4.2.1. Mechanisms

By maintaining a knowledge base firms can adapt to environmental changes and is core in order to enhance innovation performance (Lichtentaler & Lichtentaler, 2009). Dependent of the strategic intention of acquiring the firm, retention of key-persons should be a critical strategic objective (Ranft & Lord, 2000). Ranft & Lord (2000) defined three determinants affecting key-person turnover; autonomy, status, commitment. Continued autonomy of the acquired company increase key-persons positive feelings about the acquisition, and decreases the willing to leave (Ranft & Lord, 2000). However, the more autonomy the acquired company has, the harder it is to transfer knowledge (Haspeslagh & Jamison, 1991). The second determinant involves status and involvement of key-persons. By maintaining or increasing acquired employees' executive responsibilities within the acquired firm by making them part of the new management team also led to less leaving of other key-persons. The last determinant has to do with the acquirer's corporate commitment to the acquisition. Expressions of commitment to the success of the acquisition support for training and travel, and positive public relations on the part of the acquirer seem to increase employee's trust and comfort towards the acquisition. Remarkable are financial incentives doing not seem to have any influences on key-person retention (Ranft & Lord, 2000).

2.4.3. Knowledge transfer

Both Argote and Miron-Spektor (2011) as Dalkir (2005) mention knowledge transfer from the perspective of organizational learning. Where the first authors refer to the organizational learning perspective by citing Argote & Ingram (2000) as "*learning indirectly from the experience of others*" Dalkir indicates the connection that has to be made between the experienced knowledge holder and the receiver. Many scholars refer to knowledge transfer as an essential step within knowledge management (Bresman, Birkinshaw, & Nobel, 1999; Easterby-Smith, Lyles, & Tsang, 2008). Firms may significantly improve its knowledge and innovative capabilities by learning on the skills and experience from others through the transfer of knowledge. Knowledge transfer therefore will be defined as 'an event through which one organization learns from the experience of another' (Easterby-Smith, Lyles, & Tsang, 2008). A short notice regarding the use of terms; in literature authors use the terms 'knowledge transfer' , 'knowledge sharing', or 'organizational learning' all together but meaning the same concept (Duan, Nie, & Coakes, 2010); (Chen & Huang, 2009); (Cloudt, Hagedoorn, & Van Kranenburg, 2006) (Zou & Ghauri, 2008). Therefore, this research will be consistent to the term 'knowledge transfer' by means of above definition and from the perspective of organizational learning.

Knowledge transfer is critical for cross-border inter-firm cooperation (Hamel, 1991) and Hitt et al. (1998) elaborate on the important role knowledge transfer plays within international acquisitions. Much literature has stressed the importance of knowledge transfer is to create value (Bresman, Birkinshaw, & Nobel, 1999). The transfer of knowledge consists of two streams of knowledge, from the source to the recipient and back (Cummings & Teng, 2003). The success of knowledge transfer is evident in obtaining desired skills and capabilities to the mother firm (Ranft & Lord, 2000).

2.4.3.1. Mechanisms

Fear of losing power and independence is a hard barrier to overcome and motivates firms to protect against unintended transfer of knowledge to their partners (Easterby-Smith, Lyles, & Tsang, 2008). Social integration mechanisms will provide the trust, necessary in obtaining effective knowledge transfer and enables a partner's willingness to commit in helping partners to transfer and understand new external knowledge (Van Wijk, Jansen, & Lyles, 2008). Zahra & George (2002) differentiate in informal and formal social integration mechanisms, such as social networks and the use of coordinators, to leverage the inter-company boundaries.

Strategic and organizational fit enhancing the acquirer's ability to understand the capabilities of the acquired firm, and thus be able to understand the knowledge which has to be transferred. Some similarity of both knowledge bases is also within knowledge transfer an important mechanism (Lane & Lubatkin, 1998) already assessed in the acquisition of knowledge, as well as that previous experience enables a firm to develop the capability in transferring knowledge (Zou & Ghauri, 2008).

Anyhow, motivation is an important determinant when transferring knowledge. Regular and systematic mechanisms, such as templates (Jensen & Szulanski, 2007), routines (Owen-Smith & Powell, 2004), have to facilitate communication and cooperation (Zou & Ghauri, 2008). Motivation also seems very important from the perspective of cultural and geographical differences. While managers of acquiring companies might be overconfident in implementing their best practices and skills within the acquired firms, language and cultural barriers might prevent managers of acquired firms to discuss.

Motivation to share and being open for new or other ways of working is rather critical to the success of acquisitions (Zou & Ghauri, 2008). Puranam et al. (2009) even opt that in some cases structural integration is not necessary, by stating that preexisting common ground offers acquirers an alternative path to achieve coordination which may be less disruptive than structural integration. This disruption is most likely in the set of routines that are closest to the innovation area, which thus will have a negative impact on the innovation output of the acquiring firm (Ahuja & Katilla, 2001). Post-closing thus should carefully look at the potential of the company to stand alone, achieving coordination via common ground.

More specific mechanisms are provided by Bresman et al. (1999). They revealed transfer of technological know-how is facilitated by communication, visits and meetings, and by the time elapsed since acquisition. The transfer of patents is supported by the articulability of knowledge, the size of the acquired unit and the recency of the acquisition. Zou & Ghauri (2008) confirm on the articulability of knowledge and size and timing of the acquisition, but add the communication, retention of key-talents, the success/failure of knowledge transfer and the overall performance.

2.4.4. Knowledge application

Obtaining external knowledge and appropriating it for developing innovative outcomes is stated as critical to a firm's success (Bierly III, Damanpour, & Santoro, 2009). Where many models, which are – partly- based on organizational learning theory stop (i.e. Argote & Miron-Spektor, 2011; Carlile & Rebentisch, 2003), this study continues by not only integrating the knowledge but also looking into the actual application of this knowledge within the firms. Its importance another time is underscored by the attention given by Grant (1996). This author states that the application of knowledge determines the

degree of integration flexibility, which is on its turn, is one of the factors for successful knowledge integration in general.

This application of knowledge to their full capacity remains a key challenge to the firm, mainly because of the economies of scale and scope knowledge possess and the fact that knowledge expands rather than depreciates when it is used (Grant & Baden-Fuller, 2004).

Again, multiple words are used to examine the same concept, i.e. application (Dalkir, 2005; Wiig, 1993; Grant, 1996), internalization (Nonaka & Takeuchi, 1995), utilization (Grant & Baden-Fuller, 2004) and exploitation (Zahra & George, 2002) describing the core of this concept, the application of the acquired knowledge within its own firm. This study chooses to adopt knowledge application as main concept, following the integrated KM process cycle of Dalkir (2005) which comprises main theories into one KM process cycle and because of the widely recognized conceptualization of Cohen & Levinthal (1990) adopting the absorptive capacity perspective, finalizing with the necessity to apply the acquired and transferred knowledge commercially.

According to the organizational learning theory knowledge application describes internal innovation, i.e. knowledge application in a firm's own products (Brown & Eisenhardt, 1995) but also is associated with matching knowledge and markets (Lenox & King, 2004). The application of knowledge to their full capacity remains the biggest challenge of firms. Efficient knowledge application is achieved where the knowledge base exactly fits with the product domain (Grant & Baden-Fuller, 2004). In line with absorptive capacity, knowledge application comprises two stages: transmuting the assimilated knowledge and applying this knowledge to a firms own products, markets and technologies (Lichtentaler & Lichtentaler, 2009) but with the intention to keep the distinctive specialized knowledge bases intact (Grant & Baden-Fuller, 2004).

As new application often start from the combination of existing technological knowledge and new market knowledge exploitation performance often is highest in familiar markets. Market knowledge is critical prior knowledge in transmuting and applying knowledge in discovering new opportunities (Lichtentaler, 2009). Thus, inter-organizational differences can be explained by the market knowledge base. Firms with a high potential of knowledge exploitation may enhance higher innovation performance (Zahra & George, 2002). What must not be forgotten, not only application of this knowledge into own products and markets is important, but also the commercialization of these products to the markets. Eventually, this is what makes the product a success (Crossan & Apaydin, 2010).

2.4.4.1. Mechanisms

An entrepreneurial strategic posture is assumed to positively affect an organizations ability to apply the external knowledge because it institutionalizes the constant pursuit of innovation and learning, minimizes resistance to change by promoting openness in communication and knowledge transfer and minimizes the Not Invented Here syndrome by encouraging acceptance of new knowledge regardless of its source (Bierly III, Damanpour, & Santoro, 2009).

Knowledge is resided within individuals, also defined as human capital (Cummings & Teng, 2003), and causes risks, by leaving of key employees –captured with the knowledge retention stage-, but also provides a chance by making use of the social communities to which these individuals belong (Grant & Baden-Fuller, 2004). As Kogut & Zander (1992) state: “*Firms are social communities in which individual and social expertise is transformed into economically-useful products and services by the application of a set of higher-order organizing principles*”.

2.4.5. Knowledge creation

Argon and Miron-Spektor (2011) conceptualize knowledge creation as the occasion when a unit generates knowledge that is new to it. Knowledge generation and application in high-technology sectors demands that knowledge be continually replenished (Lane & Lubatkin, 1998). This last step in the KM process cycle for acquisitions is the most important one when remaining the innovative capability of the acquired firm and is described as “*developing new knowledge or replacing existing knowledge with new content*” (Nonaka I. , 1994).

While the acquiring firm has many sources of knowledge creation, such as multiple R&D centers and incubators (Philips.com) relative small innovative firms have to rely on a specific kind of technology knowledge (Alvarez & Barney, 2001). Continuously creating new knowledge, which has value for the acquiring company and brings more resources to the firm besides one single technology, will change the interdependence and autonomy relationships between the firms (Alvarez & Barney, 2001; Haspeslagh & Jamison, 1991). Mutual learning and mutual benefitting eventually will lead to a total of more innovations, organizational growth and increasing organizational performance.

2.4.5.1. Mechanisms

The conversion of tacit knowledge to new tacit knowledge occurs through social interactions and shared experiences. Creating new explicit knowledge, or combination, merges, categorizes and synthesizes existing explicit knowledge (King W. , 2009).

Argote & Miron-Spektor (2011) argue a large, deep and diverse experience base contributes to creativity in increasing the number of potential ways of thinking and paths to search, and the number of potential new combinations of knowledge. At the same time, prior experience can also disrupt creativity in drawing on familiar strategies and heuristics when searching for solutions. Within acquisitions this negative effect of prior experience probably will be less, since its combination with externally acquired knowledge and internal knowledge.

2.5. Organizational learning factors

Organizational learning enables companies to identify opportunities and adapt their organization strategy to enhance those opportunities. Several authors recognize experience and knowledge base as main drivers of this theory (Cummings & Teng, 2003; Huber, 1991).

2.5.1. Experience

Experience is seen as starting point when opting for organizational learning. This is supported by many scholars, such as Argote et al. (2011), Lichtentaler (2009), Very & Schweiger (2001) and Huber (1991).

Experience is the basis of learning (Argote & Miron-Spektor, 2011). In this study experience has two sides. First, researchers emphasize on the fact that experience helps acquiring firms to know which targets to select and to understand the complexities of the integration process (Lubatkin, 1983) but also have to be acknowledge that successful prior experience not necessarily have to work out in another acquisition (Finkelstein & Haleblan, 2002). Secondly, experience refers to the performance of certain tasks, or knowledge transfer (Argote & Miron-Spektor, 2011).

2.5.2. Knowledge base

“What can be learned is directly related to what already is known” (Inkpen & Pien, 2006, p. 781). Technological acquisitions provide technological inputs to the acquiring firm and thus potentially expand the acquirer’s knowledge base and provide scale, scope, and recombination benefits (Henderson & Cockburn, 1996; Fleming, 1999). Transferring this knowledge base can entail a disruption in organizational routines, which can have a negative impact on the innovation output of the acquiring firm. Therefore it seems important to assess on forehand whether the scale, scope and inventive combination benefits of acquisitions outweigh their negative effects on organizational routines the knowledge bases of acquired and acquiring firms have to be compared along their absolute size, their relative size and relatedness (Ahuja & Katilla, 2001; Lubatkin, 1983).

In order to successfully absorb new knowledge from an external knowledge source, some knowledge overlap is needed while a very strong overlap limits the possibilities of gaining new insights (Ranft & Lord, 2000) (Lichtentaler, 2009). One of the challenges of a firm nowadays is to purposefully create, extend, or modify its resource base (Helfat, et al., 2007) in such a way the firm is most viable to sustain competitive advantage in a dynamically turbulent environment. Current literature derived the concept of absorptive capacity as an explanation of a firm’s ability to learn from external acquired knowledge (Lichtentaler, 2009; Lane & Lubatkin, 1998).

2.6. Integration strategy determinants

Buyer strategy and organizational fit are acknowledged as initial conditioning factors of acquisition success (Stahl & Mendenhall, 2005). This study elaborates on both buyer and target intention to identify the organizational fit as the Post Merger Integration (further referred to as PMI) strategy represents the buyer strategy.

2.6.1. Buyer intention

As already stated by Haspeslagh & Jamison (1991) organizational autonomy and interdependence are two determining factors for allowing for capability transfer and accompanying knowledge integration. The intention of the buyer, Philips, determines the necessary interdependence between the companies of what knowledge they want to integrate.

2.6.2. Target intention

On the other side, since innovative capabilities of the target company can be destroyed (Ahuja & Katilla, 2001; Haspeslagh & Jamison, 1991) target companies might be reluctant. The intention of the target company therefore is likely to pursue organizational autonomy.

2.6.3. PMI strategy

Both are influencing the eventual pre-merger integration (further referred to as PMI) strategy to follow to integrate the companies. The PMI strategy however is dependent of multiple factors and is not only focused on the knowledge integration but does have its influence on it. Factors which can be of importance for the PMI strategy are the size of the company, geography and the amount of acquisition integration processes performed at the same time.

2.7. Conceptual framework

However, with the eventual goal to integrate the knowledge from one firm into the other firm Grant (1996) argues that an organizations competitiveness derived from overall knowledge integration is determined by three issues; the efficiency of integration, the scope of integration and the flexibility of integration.

The level of efficiency depends on the extent to which common knowledge exists between participants – which is covered by this study's concept of the knowledge base as discussed in 2.4.2.-, the level of coordination and organizational structure. When common knowledge is created, different specialists need to continuously practice to enhance the quality of their coordination. This is reflected in the notion of collective mind and requires seamless coordination between specialists to ensure the consistency of performance (Grant, 1996).

The scope of integration refers to the level of complexity underlying the integration of differentiated knowledge. Without prior experience organizations may suffer from a low level of integration efficiency. This issue is covered by the experience element as derived in section 2.4.1.

The degree of integration flexibility is determined by an organization's capacity for reconfiguring existing knowledge as a means of promoting continuous innovation and adjusting its strategy to both organizational learning and strategy determinant factors – see section 2.4.

The factors knowledge base and experience thus require an important place in the conceptual model and are an important factor in determining all knowledge integration phases. Nevertheless, also the paradox between the need for interdependence and autonomy has to be addressed for its influence on the post-combination innovation performance (Haspeslagh & Jamison, 1991). These factors are determined by the strategic intention –or rationale- of both companies and the intended structure after combining the firms (Haspeslagh & Jamison, 1991).

After taken all elements, the knowledge integration phases and their accompanying mechanisms into account, this leads to the conceptual model below, illustrated by Figure 4.

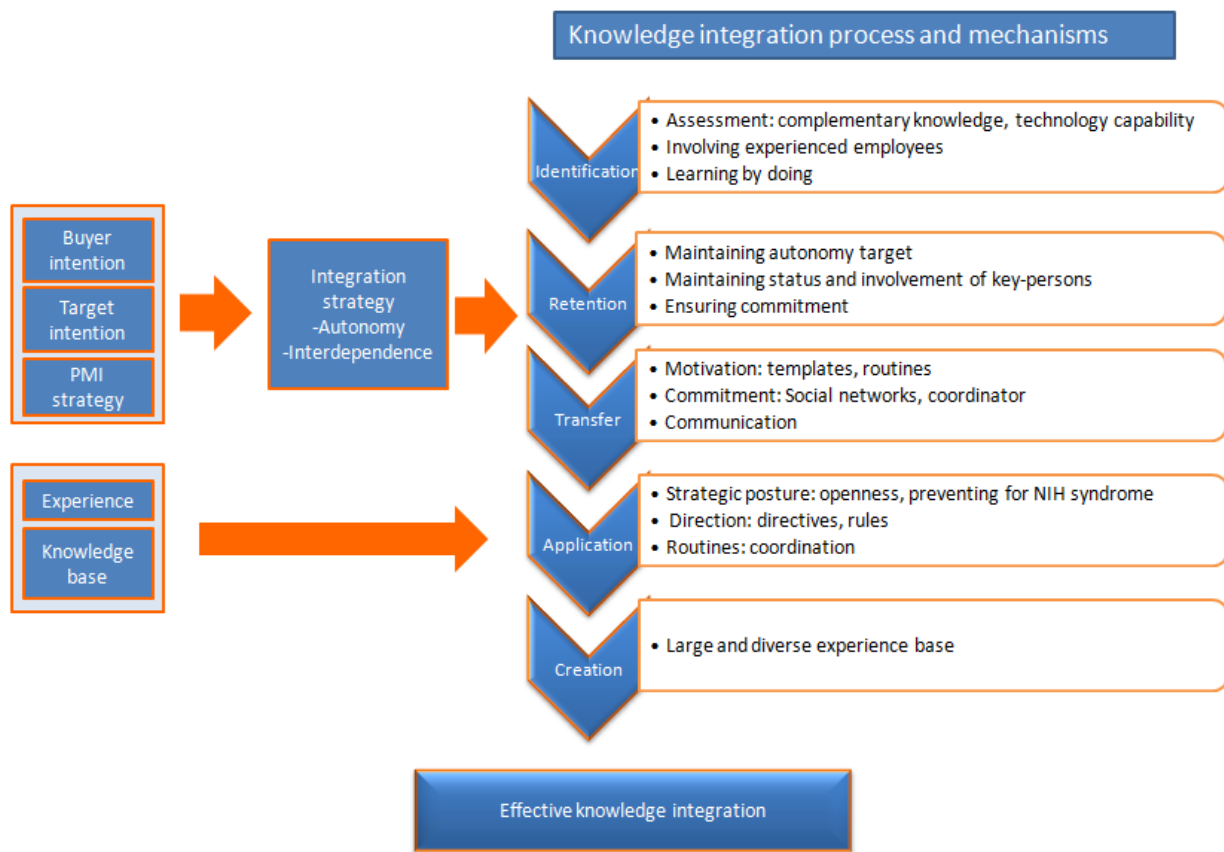


Figure 4 The conceptual knowledge integration process of acquisitions

Chapter 3 Methodology

This chapter provides an overview of the methodological approach adopted in this research. First, the research purpose and approach are introduced in section 3.1., followed by the research design – section 3.2.- and data analysis –section 3.3. Finally, the research quality indicators – i.e. reliability and validity – will be discussed in section 3.4.

3.1. Research purpose and approach

Research can serve many purposes of which the most common ones are: explanation, exploration and description (Babbie, 2007) (Saunders, Lewis, & Thornhill, 2009). These purposes do not have to be achieved separately but can also be combined, or adjusted over time (Saunders, Lewis, & Thornhill, 2009)

When a study has the purpose to clarify a subject, to figure out processes or wishes to gain new insights the study has an exploratory nature (Saunders, Lewis, & Thornhill, 2009). Babbie (2007) mentions three purposes of when exploratory studies are most appropriate: 1) to gain better understanding of a problem, 2) test the feasibility of a study, and 3) to develop methods that can be employed in any subsequent study. Conducting this kind of research can be done by literature research, interviewing experts and focus group interviews (Saunders, Lewis, & Thornhill, 2009). However, also a descriptive path will be followed by describing the current way of knowledge integration within Philips.

Thus, this study has an exploratory and descriptive nature. First, a knowledge management workstream for acquisitions is currently not present at Philips but a description has to be given how Philips handles knowledge on this moment, and second, also in literature a knowledge process cycle specifically for acquisitions is novel. Because of the exploratory nature of this study, the predetermined rationale and the direction are not straightforward and fixed but can change during the research itself (Yin, 2009).

The research approach is dependent of the kind of research question which is proposed, the extent of control a researcher has over actual behavioral events and the degree of focus on contemporary as opposed to historical events (Yin, 2009). The main research question of this study is a clear 'how' question, finding out how the knowledge management process should look when used within innovative acquisitions. Therefore, no behavioral events have to be controlled. The 'how should', focuses on a contemporary set of events over which the researcher has little or no control (Yin, 2009). Concluding that, according to Table 2, a case study should be most appropriate to conduct in this study (Yin, 2009).

Table 2 Relevant situations for different research methods (Yin, 2009).

Method	Form of research question	Requires control of behavioral events?	Focuses on contemporary events?
Experiment	How, why?	yes	yes
Survey	Who, what, where, how many, how much?	no	yes
Archival analysis	Who, what, where, how many, how much?	no	yes/ no
History	How, why?	no	no
Case study	How, why?	no	Yes

3.2 Research design

This section will give a profound understanding of the design applied in this research. First, the research strategy will be clarified, followed by the selection of cases and the sampling technique.

3.2.1. Research strategy

In order to answer the main research question and underlying sub-questions a case study seems to be most appropriate. A case study is *"an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomena and context are not clearly evident"* (Yin, 2003, p.18). The power of a case study is *"to illuminate a decision or a set of decisions: why they were taken, how they were implemented, and with what results"* (Schramm, 1971; cited in Yin, 2003, p.17). The interaction with people involved and making practically use of the findings secures not only high-level theoretical implications but also practical managerial applications.

This study deploys a multiple-case study design, by using six recent acquisitions at Philips as individual cases. A single-case study is only justifiable when investigating only one unique, very typical or critical event or serves revelatory or longitudinal purposes (Yin, 2009) multiple-case studies make the study more robust and compelling (Yin, 2009; Eisenhardt, 1989). Besides this convincing argument, not one acquisition is the same. What can be applied in one acquisition, cannot in another while knowledge integration is relevant for most. By investigating multiple acquisitions different perspectives can be given (Cresswell, Hanson, Clark Plano, & A., 2007) the overall process and specialized mechanisms can be defined. Although criteria regarding sample size are irrelevant as sample logic is not used, Yin (2009) made some suggestions. When the framework needs to state the condition under which a particular phenomenon is likely to be found (a literal replication) two or three cases would be enough. When also considering conditions when the phenomenon is not likely to be found (a theoretical replication) another four to six cases have to be investigated. Since this study will explore six cases, including both successful and less successful knowledge transfers within acquisitions, both literal and theoretical

replications (i.e. aiming to produce the same versus contrasting results for predictable reasons) will be met.

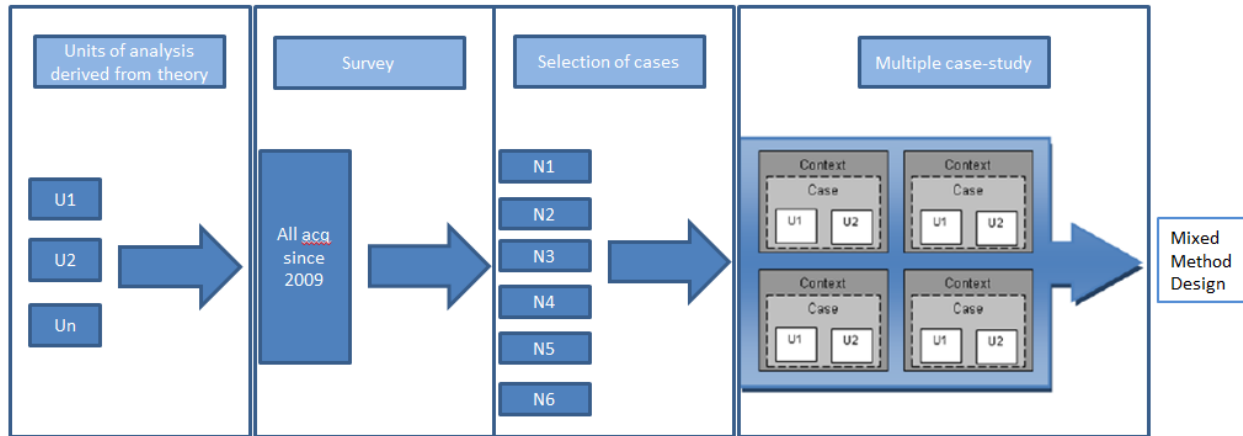


Figure 5 Mixed Method Research Design (Influenced by Yin, 2009).

This study adopts an embedded approach, considering multiple units of analysis (Yin, 2009) by the different knowledge integration process steps taken by technology-driven acquisitions. In order to collect a richer and stronger array of evidence this research first adopted a survey-method to carefully select cases. Based on the findings from the survey, with the help of a case study each of the variables will be described. After a thorough case description a cross case analysis will be conducted. This cross case analysis helps in determining overall patterns and addresses the main success mechanisms and pitfalls. Thus, this research has adopted a mixed method design (Yin, 2009).

At last, this study can be described as cross-sectional by collecting data at one particular moment in time.

3.2.2. Case selection

In committing to the multiple-case study in which both literal and theoretical replications will be met, cases have to be selected and cannot be randomly chosen. The unit of analysis is the bases for the cases and decides upon which individual, event, organization, team, or department needs to be studied in order to answer the research question (Yin, 2009). In this study, the unit of analysis is technology-driven acquisitions. First, technology acquisitions aim to have a high innovation rate (Graebner, Eisenhardt, & Roundy, 2010). Second, this study adopts this focus because, as shown in Table 3, in all technology acquisitions special effort is taken to transfer knowledge (n=6).

Table 3 Comparative analysis reason for acquiring and the effort taken to transfer knowledge (n=22)

		Reason for acquiring				
		Market-driven (n=4)	More market than technology driven (n=4)	Equal market and technology driven (n=6)	More technology than market driven (n=6)	Technology- driven (n=2)
Special effort taken to transfer knowledge?	No	25,0%	60,0%	,0%	,0%	,0%
	Yes	75,0%	40,0%	100,0%	100,0%	100,0%
	Subtotal	100,0%	100,0%	100,0%	100,0%	100,0%

For carefully selecting cases, the Requests of Approval (RFA) from all acquisitions - since 2009- are examined on their strategic rationale behind the purchase. This RFA is the final document after the Due Diligence phase in which the M&A team clarifies why Philips should acquire this specific company, including strategic rationale, potential synergies and value, and potential risks.

3.2.2.1. Survey

However, since this study involves all phases and not only the pre-combination phase a survey has been send to all involved PMs, who are responsible for the integration, to gather information about the effort taken to transfer knowledge, if knowledge transfer mechanisms are used, the integration of knowledge and if so, the quality of this knowledge. Additional, the PMs are asked about the initial reason for purchasing the relevant companies to check the validity of the researchers own conclusions from the RFA's. The invitation of the survey can be found in Appendix III and the survey is added in the Appendix IV. The questions aim to narrow down the amount of cases and to choose the right cases for this specific research. Since this study focuses on technology driven acquisitions, the first question is set to find out. The second question aims to investigate whether special effort is taken to transfer knowledge to be able to compare used mechanisms. The third question studies the success of the knowledge integration as the fourth and last question tries to scale that success.

To obtain a response rate of 100% the survey contains only four multiple choice questions. For designating supplementary information comments can be added after each question. After evaluating the answers, it was discussed with a PM, whom is part of NVI since 2007, to double-check the answers and to gather agreement.

The selection has to be based on a diverse set of roughly 40 acquisitions that were available at this particular moment in time. In order to diminish data deficiencies and triangulation errors, all acquisitions for which data was unavailable or difficult to retrieve were left out (Yin, 2009). This has led to a first elimination of all acquisitions before 2009, because it is essential most key-players within the acquisition are still active and reachable, leaving 22 acquisitions.

Of these 22 acquisitions only the 'technology-driven' or 'more technology than market driven' acquisitions are selected (See Table 3). This limits the selection to eight cases and has led to one deviant case; Messenger on which the PM commented initial effort was put into knowledge transfer but there

has not been any yet.

The next selecting procedure came from the quality of the knowledge integrated, which also led to a deviant case; Moon which is labeled as 'barely acceptable'. Since, the quality of integrated knowledge is an important determinant of the different case studies. Hereby one follow-up note has to be mentioned. Later, Tyler has been suggested as 'barely acceptable' instead of 'very good' since there has been some misunderstanding.

After this the selection continued on whether the knowledge has been integrated or not, including two 'to some extent', two 'in progress', and two 'yes' cases, also representing all three Philips business sectors. The overview is provided in Appendix V and altogether these cases allow for both samples as contrasting results, concluding into these six cases:

- Moon
- Tyler
- Messenger
- Delight
- Snowflake
- Sun

In the special occasion when one of the acquisitions eventually is not as exemplar or deviant as expected, Detroit could serve as an alternative, which has not been necessary. Eventually this case study provides the opportunity to replicate and extend the emergent theory (Eisenhardt, 1989).

3.2.3. Sample

The interviewees are selected by means of non-probability sampling, since this is the most appropriate sampling technique for a study that does not aim to generalize among the entire population (Saunders, Lewis, & Thornhill, 2009).

Figure 6 illustrates a classification of the different sample methods. Purposive, heterogeneous sampling seems to be the most appropriate, in line with the selection of cases. This method enables selection of the most information-rich and interesting cases in order to get insights about the particular phenomenon at hand and thus suits the purpose of this study in exploring the subject and the search to new and different insights (Patton, 2002) (Saunders, Lewis, & Thornhill, 2009). Therefore, the selection of interviewees is based on their expertise, their relatedness to the acquisition and their availability. Eventually this has led to highly diversified group of interviewees: Program Managers – responsible for the whole project from Philips-, Business integration leaders – project management on location from Philips, HR or R&D workstream lead, responsible for on-site implementation and the CEO from the acquired company or, when replaced, from Philips – as far as available. Furthermore, this study will made use of the snowball-method which is based on interviewee's recommendations for more information. This has led to three extra interviewees: one from M&A – who is responsible for the pre-combination phase -, the global R&D lead of Lighting and a Business Improvement director – who has played a big role in knowledge management within Philips itself. An overview of the interviewees can be found in Appendix VI.

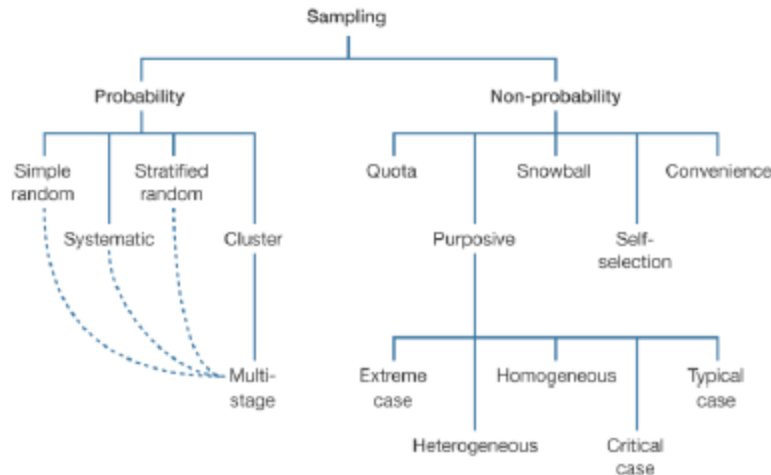


Figure 6 Sampling strategies (Saunders, Lewis & Thornhill, 2009).

3.3. Data collection

Case study research relies on multiple sources of evidence (Yin, 2009; Eisenhardt & Martin, 2000). Although qualitative data is predominantly used in this study, it additionally makes use of some quantitative data. Overall this study relies on the following six sources of data: documents, archival records, interviews, direct and participant observations, and physical artifacts (Cresswell, Hanson, Clark Plano, & A., 2007; Yin, 2009). Therefore, this study can be described as a multi-method qualitative study (Saunders, Lewis, & Thornhill, 2009).

3.3.1. Literature research

Because of the very exploratory intend of this research an extensive and in-depth literature study of academic literature provided the necessary input to build a theoretical framework. When considering academic literature, special attention is paid to the amount of which they are referenced to and the use of peer-reviewed journals and books, to ensure journal articles are used that are considered valid contributions by scholar. This literature will be retrieved from search engines available at the library of the University of Twente, such as Scopus, Web of Science and Google Scholar.

Next to this academic literature study, internal records and databases, website, so-called SharePoint and other documentation available at Philips will be used as secondary data source. This will also include some quantitative data, such as size of acquisitions, number of employees, employee turnover, and cross-moves. These aspects will be collected in order to recognize possible patterns among acquisitions and in the selection of cases. All information gathered via secondary data collection is used to supplement and support the qualitative data obtained from the primary data collection (i.e. survey and interviews), following a triangulation approach (Yin, 2009).

3.3.2. Primary data collection

However, in aiming to answer the research question and gain in-depth views of both the acquired companies as of Philips semi-structured interviews are held within the non-probable selected cases. This

multiple case study is based on six cases which are believed to be exemplary or deviate for the hypotheses (Yin, 2009). Opposing cases are included to enhance validity. Primarily qualitative semi-structured interviews are used in this research since they are most useful for answering the typical how, what and why questions, rose in case studies, and for exploring novel, detailed and deeply informative data (Saunders, Lewis, & Thornhill, 2009). This is partly because of the space it enables the interviewee to raise new topics and it provides the opportunity to probe responses (e.g. by means of reflecting and asking supplementary questions) and to verify interpretations of the answers (Saunders, Lewis, & Thornhill, 2009). The questions are derived from theory and the conceptual model of section 2.6. served as basis. Each question aims to get an answer on how each stage – i.e. identification, retention, transfer, application and creation- is perceived and what problems and success factors are encountered and how they did this. Nevertheless, the open structure and the story telling answers yield more practical data and factors comprising the whole complex and dynamic concept of knowledge integration.

A pre-test has been done to test if the interview protocol is complete and clear and provides a clear understanding of what the interviewer wants to know. After this pre-test the interview has slightly been changed into a more open interview protocol.

A week before the interview has been executed the interviewee received a list of topics to introduce the subject, emphasize confidentiality and leave room for questions and preparation. Most interviews are conducted by means of conference calling due to the geographic dispersion of the interviewees, which also explains why most interviews will be held in English. When the interviewee was a native Dutch the interview was held in this language. In case of conference or phone calling, the introduction mail will also include a request to sit down in a quiet room without any disturbing factors, deducting from the interview itself. However, some interviewees were positioned in the Netherlands which allowed for face-to-face meetings. The interviews have been scheduled for half an hour to one and a half hour, depending on the agenda of the interviewee and the amount of acquisitions to handle, and will be recorded to ensure traceability, accuracy, richness of data and enhance objectivity (Saunders, Lewis, & Thornhill, 2009). During each interview besides recording also notes have been taken and a transcription has been made. For the analysis of this paper, all names and other identifiable information have been changed to guarantee the anonymity of the interviewees. Completeness and reliability is enhanced by sending the summaries of the interviews and their answers on the most important questions to the interviewees for revision, when necessary.

Another way through which primary data is obtained is by means of direct and participant observation since the researcher held an internship position within the NVI department of Philips at the time of this research. This enabled easy access to key actors, experts and documentation and the possibility to *“perceive reality from the viewpoint of someone in the case study, rather than external to it”*, which is believed to be *“invaluable in producing an accurate portrayal of a case study phenomenon”* (Yin, 2009). Participant observation is especially important in complex and challenging research environments like M&A, where it can contribute to more awareness and sensitivity about this topic.

3.3.3. Data analysis

With the transcriptions of the interviews this data is analyzed with MAXQDA, a professional qualitative data analysis program. First all transcriptions were put in the program; a document group per acquisition. The next task has been to code these interviews. Therefore the five variables identification, transfer, retention, application and creation are used as head variables. Sub variables are added to get a detailed overview of each mechanism. These mechanisms are both gained from the conceptual framework as from the interviews themselves. A cross-case analysis is used to enhance generalizability, and to deepen understanding and explanation (Miles & Huberman, 1994). After putting data within a display in matrix form, two approaches can be used within analyzing. One is the case-oriented analysis, which looks at specific cases (i.e. acquisitions) and can be read across a row (Miles & Huberman, 1994) in this study performed as a descriptive analysis.

The second approach is the variable-oriented analysis, which concentrates on the different variables measured (i.e. acquisition, transfer, retention, application and creation and the accompanying mechanisms) and can be read vertically. It is desirable to use both strategies together, by stacking comparable cases, which is a wrap-up of a series of cases when using a more or less standard set of variables, here performed as a cross-case analysis. Matrices and other displays are used to analyze each case in depth. Since these outputs are immense files, these can be requested for by the researches as one wants. After thoroughly understanding of each case, cross-cutting variables can be defined and will be put in a meta-matrix, which is then further condensed, permitting systematic comparison (Eisenhardt, 1989; Miles & Huberman, 1994). This study is analyzed via both ways.

3.4. Reliability and validity

Traditionally case studies have been viewed as a less desirable form of inquiry, typically due to the lack of systematic procedures and the relatively large potential for biased results (Yin, 2009). To determine the quality of this exploratory research tests of construct validity, external validity and reliability were conducted (Yin, 2009; Eisenhardt, 1989). Throughout the research process these tests were applied to assure a high-quality case study inquiry, as summarized in Table 4

A study can be called reliable when it is demonstrated that the data yields consistent findings and that the operations of a study – like data collection – can be repeated by other researchers concluding with the same results (Yin, 2009; Saunders, Lewis, & Thornhill, 2009). By means of interviews, interviewer and interviewee bias have to be considered (Saunders, Lewis, & Thornhill, 2009). That is, interviewer behavior in introducing bias in the interviewee's response and interviewee socially desirable answering (Saunders, Lewis, & Thornhill, 2009). Accordingly, the use of conference and phone calls can work as an advantage, because in this case it increases objectivity. Observer error and observer bias are two other possible threats to reliability in that the researcher can become a supporter and loses neutrality which can influence analysis and conclusions (Yin, 2009).

Table 4 Strategies to enhance quality in case studies (Yin, 2009).

Test	Case study tactic	Phase of research	Applied in this study?
Construct validity	- Use multiple sources of evidence	Data collection	Yes
	- Establish chain of evidence	Data collection	Yes
	- Reviewing data analysis by informants	Data collection	Yes
Internal validity	<i>Not applicable for exploratory case studies</i>		
External validity	- Use theory in single-case studies	Research design	N/a
	- Use replication logic in multiple case-studies	Research design	Yes
Reliability	- Use case study protocol	Data collection	Yes
	- Develop case study database	Data collection	Yes

These biases can be minimized by using a case study protocol and the utilization of a case study database. The protocol will include an overview of the case study project, procedures, general case study questions, and interview schedule. The raw data – audio files, summaries, general information, personal notes, and e-mail conversations – will be saved within a database so that other researchers have to possibility to re-track the initial evidence at any point of time (Yin, 2009).

Reliability is a prerequisite for measurement of validity. Validity refers to whether the study measures what it is deemed to measure, depending on its purpose (Saunders, Lewis, & Thornhill, 2009). Construct validity is about establishing correct operational measures for the concepts being studied. However, construct validity is ensured by using multiple sources of evidence so all information is validated by examination of internal documentation or by inferring from other interviews – referred to as triangulation (Bryman, 2008; Yin, 2009). Internal validity refers to the establishment of a causal relationship, whereby conditions are shown to lead to other conditions (does not apply to exploratory studies) and external validity deals with the generalizability of the findings to the external environment (Yin, 2009). Replication logic is applied to allow for more convincing generalization of the case study findings (Yin, 2009) and the cross-case analysis will also help in establishing generalizability (Miles & Huberman, 1994).

Chapter 4 Findings

This chapter is devoted to the presentation of the most important findings from the analysis. First, section 4.1. will provide an holistic description of the general Philips acquisition integration procedure to ease the understanding of the two sections following in which interviewees might refer to this standard procedure. Section 4.2 and 4.3. address RQ2 by providing an in-depth case analysis in which the current ways of working are displayed. Answering RQ3, a cross-case analysis of the knowledge integration mechanisms in acquisitions currently deployed by Philips is provided in section 4.3. This part is based on the perceptions and views of Philips' employees and includes their recommendations towards how Philips' KI approach in acquisitions should look like. Quotes out of the interviews are added to the text to underpin the findings. This public version will not display the quotes to protect individuals. Data can only be requested for at the researcher.

In both sections the findings are presented following the conceptual framework as proposed in section 2.2.6. That is knowledge identification, knowledge transfer, knowledge retention, knowledge application and knowledge creation. The organizational learning variables, knowledge base and experience, will be handled in section 4.3.6. and the strategy determinant factors in 4.3.7. the conclusion will be represented within section 4.4.

4.1. Philips general integration procedure for acquisitions

All information from this section is perceived from internal Philips sources. As soon as one of the Philips business groups finds a potential target company and has decided this company fits their requirements they connect to the M&A department. M&A provides execution support for the sectors, such as negotiations, valuation and Due Diligence, and advises the Board of Management in acquisitions. Depending on the strategic intention the New Venture Integration (NVI) team will be involved earlier on in the process to design a Post-Merger Integration plan. This concludes in a Due Diligence team consisting of business experts, M&A team members and NVI team members, as showed in Appendix VII. During Due Diligence this team assesses the company with the information available. However, until the definite close of the deal not all the information is accessible and statements are partly based on assumptions.

After close the M&A team retrieves and hands the acquired company over to the NVI team. The integration management team consists of a business integration leader (BI), an integration manager from the target, a program manager (PM) from NVI. This team is responsible for the integration. The business process integration is supported by functional workstreams that consist of a workstream leader (Philips), functional experts (e.g. from NVI, country organization or sector) and a project or country manager, see Appendix VIII. A communication- and a culture expert complete the integration team.

However, this is a model and in real life there are many factors influencing the execution of this model, such as size, complexity of the acquired company and deal size. The BL is assigned to the MT of the acquired company and usually succeeds the CFO of the company or fulfills the function of Business Integration Leader next to the CFO. While some of the roles from Philips side are performed within the

acquired company itself, this is not usual. The workstream leads are from the acquiring business, they are mentored by the NVI functional experts, but execute this responsibility next to their normal assignment. In general the timeline of an integration team is aimed for two years. This can be extended if not all the functions are completely rolled out yet.

From the perspective of knowledge integration, understanding the Philips acquisition integration process and the different roles and responsibilities is of importance for the influence of knowledge base and the experience factors as proposed in the theoretical framework. First, the M&A and NVI department use the experience they have in doing acquisitions to help the acquiring business group in choosing the right target. Being experienced in the execution of the integration allows for developing best practices and lessons learned. This helps in establishing the right framework for the integration of knowledge. Second, the knowledge of the acquiring business group usually is closely related to the knowledge possessed by the acquired company. The involvement of the acquiring business group and their role within the M&A and integration process therefore effects the knowledge identification and knowledge transfer and increases the possibilities of gaining new insights.

4.2. Descriptive case analysis

For confidentiality reasons this section has been removed.

4.3. Cross-case analysis

A cross-case analysis is executed to answer both RQ 2: *How does Philips currently deal with the knowledge integration process in technology-based acquisitions?* and RQ 3: *What should Philips improve in order to facilitate an effective knowledge integration process within technology acquisitions?*

Each KI process step will be handled separately to be able to analyze the current Philips KI process and the accompanying pitfalls and success together with the provided theory. The first column – see table 5, 7, 8, 10 and 11- defines how Philips currently executes this stage by summarizing the used mechanisms derived from the descriptive case analysis. Furthermore, the tables evaluate these processes by providing pitfalls and success mechanisms which can be extracted from the interviews and its description in section 4.2. After the first three columns answers are provided on the questions ‘How is the current process’ which is an answer on RQ2, ‘what went less successful’ and ‘what went successful’ which serve as basis for answering Q3. The last column reminds of the theoretical mechanisms to be able to compare these with current Philips KI process. Together, the tables create a cross-case analysis to reveal patterns and mechanisms across all cases providing answers on RQ2 and RQ3 and serve as basis for answering the HQ.

This chapter starts with an overview of the KI stages and the acquisition integration phases – i.e. pre-combination (BC), combination (C) and post-combination (PC)- in which they are executed. When between brackets the KI stage is still in process. After analyzing all variables separately, section 4.3.6 will elaborate on the learning variables and strategy determining factors.

4.3.1. Knowledge identification

The knowledge identification stage is present in all acquisitions, as displayed in Table 5. In this stage two mechanisms are leading, i.e. a pre-assessment executed by an expert, and the identification of key-persons. This corresponds with the theoretical foundation in which assessment of complementary knowledge and technology capabilities and involving an expert in performing this assessment (Zou & Ghauri, 2008; Finkelstein & Halebian, 2002). Nevertheless, the learning by doing component does not evolve in this empirical analysis and its influence cannot be proved.

Remarkable is the fact that the presence of these assessment and expert components alone does not guarantee success. Both the successful and less successful cases paid attention to the assessment of knowledge and an assessment on itself does not seem to have an effect on the success of knowledge integration. However, when focusing on the pitfalls and the success mechanisms a clear explanation can be drawn. In the cases Moon and Delight all did not respond on the outcomes of this pre-assessment and Messenger did not solve the problems that occurred. The determinant of KI success is dependent of how the outcomes are interpreted and incorporated in the PMI strategy. A very strong indicator of this determinant result from Tyler in which the KI did not start until an expert came in and did a tough assessment, identified the similarities and gaps and adjusted the PMI strategy to this outcome. Nevertheless, to reveal the gaps between the acquisition and the Philips organization not only the acquisition has to be assessed on its knowledge but also the acquiring Philips business unit to prevent from overestimating as happened within the Delight case.

The second mechanism generally applied in all six cases is the designation of key-persons, who

possess critical knowledge and/ or skills. This is not explicitly defined in literature as it is directly linked to the retention stage and a determinant of retaining the critical employees. However, the approach to the identification of key-persons differs and a clear pattern is shown in table 5 in which the less successful cases give the CEO of the acquired company the opportunity to appoint the critical employees. But the more successful the cases get, the more influence and collaboration there is from Philips side to choose the right key-persons. One can conclude that involving both Philips employees whom are concerned with the acquisitions - such as the DD team or even from the acquiring BU- is an important mechanism which has to be used when identifying key-persons.

Table 5 Cross-case analysis knowledge identification

Acquisition	Current process	Phase	Pitfalls	Empirical success mechanisms	Theoretical success mechanisms
Moon	-Pre-assessment by R&D expert - Appointing key-persons by CEO	BC	-Different expectations - Outcomes pre-assessment not encountered	Involving expert during DD	- Assessment of complementary knowledge and technology capabilities - Experience - Learning by doing
Tyler	- Tough assessment by new Philips GM	PC	- no pre-assessment technology on forehand	Philips GM coordination and tough assessment	
Messenger	-Pre-assessment by external company - Appointing key-persons by CEO	BC	- Outcomes pre-assessment not solved	Recognized technological differences	
Delight	- Securing external knowledgeable Relationships - Appointing key-persons by Philips DD team and Delight MT	BC	- Did not recognize lack of innovative capabilities - Overvalued Philips knowledge	Recognized critical knowledge during DD	
Snowflake	-Appointing key-persons by CEO and GM Business Unit WHC -Acknowledgement mutual learning possibilities after pre-assessment - Identification key persons combined Philips and Snowflake	BC		-Involving expert during DD - Defined what to learn from each other -Clear PMI strategy - Identification key persons combined Philips and Snowflake	
Sun	-Pre-assessment by R&D expert -Recognizing differences and value areas -Appointing key-persons by founders and Philips with help of interviews	BC		- Involving expert during DD - Adjust knowledge strategy to outcomes	

Improvement areas

As shown in Table 5 patterns can be distinguished regarding the identification of knowledge within the six cases. First, involving an expert during the Due Diligence period is recognized as a major factor in determining the success of the knowledge identification. His task has to be to assess the technology and

also the expected – innovative- capabilities and possibilities to learn from each other. However, when potential risks are identified before the deal is closed, these have to be anticipated on by adjusting the PMI strategy.

Not only the critical knowledge of the acquired company has to be identified, it also of high importance Philips acknowledges the critical knowledge of the acquiring Philips business itself to give existence to the complementary knowledge base.

4.3.2. Knowledge retention

To maintain innovation from the acquired company’s side and others whom are on-site acknowledge the need for knowledge retention. Hence, the company can focus on its business and preparing for the transfer stage. Regarding the retention of knowledge some major patterns are revealed as can be found in Table . One mechanism standing out is that key-persons receive a financial retention package to maintain them. Interviews with the concerned employees revealed that these financial bonuses do play an important role in convincing them to stay with Philips opposed to what has been found in literature (Ranft & Lord, 2000). Sun provided key-persons with clear future opportunities and appreciation which is in line with the status and commitment mechanisms that are derived from theory (Ranft & Lord, 2000).

Next, retaining the CEO of the company for at least a transition period can be assumed as an important success determinant as it is discussed in all apparent cases. The leadership and his attitude regarding the acquisition can make or break the knowledge integration process. When his leadership style or attitude regarding the acquisition does not fit the desired style or attitude it is best to put the CEO in another position in which his capacities fit better. The same counts for other high-level key persons, such as the CTO. Third, not only financial bonuses but also giving high level leaders perspective, challenge and appreciation are important success mechanisms in the knowledge retention process (Ranft & Lord, 2000).

Table 6 Overview retention packages and turnover rates

Acquisition	# of employees	# of employees with retention package	% of employees with retention package	# of regretted and non-regretted turnover during retention period agreed (max 2 years after deal close)	Turnover (%)	BBSC Retention %
Moon	45	10	22,22%	0	0,00%	100,00%
Tyler	46	0	0,00%	N/A	N/A	N/A
Messenger	39	7	17,95%	0	0,00%	100,00%
Delight	400	26	6,50%	2	7,69%	92,31%
Sun	130	10	7,69%	0	0,00%	100,00%
Snowflake	110	30	27,27%	0		

Another success mechanism elaborates on the replacement of some functional leaders by Philips functional leaders, as well as installing an R&D manager from the start. When putting Philips leaders on site both the values of Philips but also the values of the acquired company can be taken into account with.

At last, for remaining the most of the non-critical employees, working in teams, putting a step-by-step process in place, as well as the communication about the benefits of working for Philips worked out. To keep the entrepreneurial spirit, rewarding employees for taking risks is appointed. Apparently, Philips does well in retaining key persons as the numbers in Table 6 show very few key persons have left. As stated in literature (Ranft & Lord, 2000) and supported by Table key-persons autonomy, status and commitment are recognized as important determinants of knowledge retention. Thereby, Philips applies more mechanisms as retention packages, leadership retention, replacing functional leaders by Philips employees and stimulating the employees by several mechanisms.

Table 7 Cross case analysis knowledge retention

Acquisition	Current process	Phase	Pitfalls	Empirical success mechanisms	Theoretical success mechanisms
Moon	-Key-persons received financial retention bonus - Earn-out option for CEO	BC	- Not all identified key persons were that critical - CEO not an operational leader	- Retention bonus for identified key persons - Retention of CEO for his influence	<ul style="list-style-type: none"> - Maintaining autonomy - Requiring status - Gaining commitment
Tyler	- Key persons received financial retention package -Remain founders for transition period - Being clear about transition to commercial com - Create clear job descriptions -Reward people for taking risks	BC/C	- CEO was a small business leader	- Retention packages (funds and shares) key persons - Autonomy, status employees - Reward for taking risks	
Messenger	-Key persons received financial retention package -Retention of CEO	BC	- Resistance of CTO to knowledge sharing	- Retention package (money and equity) - Retention of CEO and CTO for their knowledge and experience	
Delight	-Key persons received financial retention package - Not-key leading persons replaced by Philips employees	BC	- Some key persons left; found other opportunities	- Retention package key persons - Replacement Finance, Marketing, HR by Philips persons - Acknowledgement high level leaders	
Snowflake	-Key persons received a financial retention package - Retention of CEO	BC		-Retention packages for key persons - Retention of CEO	
Sun	-Key persons received financial retention package and perceived	BC		- Retention packages key persons together with perspective, challenge	

future opportunities - Retention of CEO for 2/3 years -Assigned quality manager - Require documenting processes - Team working - Step-by-step process working -Communicate about benefits Philips	and appreciation - Documentation of knowledge - Quality manager assigned - Working in teams - Step-by-step processes - Communication about benefits of working for Philips -Retention of CEO - Installing R&D manager from start	
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Improvement areas

The presence of the retention stage is highly acknowledged within Philips and perceived much attention within all the cases as can be seen in Table 6. Retention packages play a huge role in convincing people to stay but currently often only exist of a financial bonus. Philips has to provide this financial bonus but does also have to acknowledge that this financial stimulus only is short-term and additional mechanisms are required when opting for a long-term retention period.

In line with the maintenance of the autonomy is the choice between retaining the current CEO of the acquired company and his influence or let him go together with his knowledge and experience of his business is one of importance. The sort of leadership the CEO possesses seems to be a determinant which can be used when a choice has to be made. The alternative would be to send in a Philips employee to coordinate the acquisition from then on, including his experience and knowledge with the acquiring business.

4.3.3. Knowledge transfer

Real knowledge transfer apparently is very hard to establish and takes much time to realize. Especially when the knowledge has to be remained and a focus lies on continuation of the business, which will be disturbed by Philips requesting information. As is shown in Table speedy implementation of routines and templates instigates resistance towards Philips and decreases the motivation to share. As routines and templates are suggested to motivate employees in sharing knowledge, timing appears to be the determinant factor.

A clear relationship between knowledge identification and transfer seems to exist; if the parties fail in recognizing the critical knowledge on both sides a lot of miscommunication appears. Both companies have different expectations of each other and especially when the transfer of knowledge has to occur this is apparent. Managing expectations together with communication are the main topics in setting the right framework for knowledge transfer (apparent in Table). Expectations management from literature (Haspeslagh & Jamison, 1991) is already found to be essential in overall acquisition success but is also a necessary condition within the specific knowledge integration process. Clear direction, transparency and explicit coordination provided from Philips are key but also hard to establish when the strategy is not clear on beforehand. Thus leadership seems to play a big role in this motivational factor.

Next, involving the acquired company in setting the strategy increases the willingness and

openness of the acquired company key persons and employees to share because key persons seem to experience more autonomy.

Table 8 Cross case analysis knowledge transfer

Acquisition	Current process	Phase	Pitfalls	Empirical success mechanisms	Theoretical success mechanisms
Moon	<ul style="list-style-type: none"> - Requiring regular reporting and a product roadmap - Appointed Philips controller - Engage in Philips research - Installing the same communication tools - Regular meetings - Moon sharing technology protocols 	C/PC	<ul style="list-style-type: none"> - The speed of implementing templates and routines - Inexperienced Philips controller - Rapid change of leadership - Different communication style - Resistance to Philips procedures 	<ul style="list-style-type: none"> - Relationship building - Technicians open to learn - Communication tools 	<ul style="list-style-type: none"> - Motivation by offering templates and routines - Commitment by offering social networks and coordinator - Communication
Tyler	<ul style="list-style-type: none"> - Quickly move over to Philips financials and identity - Introductory meetings - Functional leadership meetings - After six months Philips GM appointed - Slow down integration - Streamlining processes - Clear communication and explanation 	C/PC	<ul style="list-style-type: none"> - Leadership expectations - Only talking to owners during DD 	<ul style="list-style-type: none"> - Sending in a Philips BI/GM - Slowing down integration - Clear direction and coordination - Managed expectations 	
Messenger	<ul style="list-style-type: none"> - Informal activities; visits and sharing facilities - Intention of employee rotation program - Big Bang approach 	PC	<ul style="list-style-type: none"> - Incompatible programs - No clear direction - No transparency - No listening 	<ul style="list-style-type: none"> - Intension of building relationships 	
Delight	<ul style="list-style-type: none"> - Collaboration between Delight and SC R&D team - Strong links between MT's - Workshops to share insights - Stakeholder reviews and meetings - Communication plan - Ambassadors program - Monthly town hall meetings and news letters - Cross moves - Engineering project manager in place to leverage technologies - R&D manager Philips in place - New Innovation manager 	C		<ul style="list-style-type: none"> - Collaboration with Philips group - Workshops to share ways of working - Clear roles and responsibilities - Ambassador program - Communication - Cross-moves - Newly hired innovation manager - R&D manager of Philips in place 	

Snowflake	<ul style="list-style-type: none"> - Collaboration between R&D sites with intention to learn - Philips HR and Integration manager in place - Philips WHC R&D manager on site for 3 months - Regular communication via posters, newsletters and weekly town hall meeting - Communication via Snowflake CEO - Gatekeeping role CEO - Rotational programs 	C	<ul style="list-style-type: none"> - Philip employees resistant to learn - Sites work independently 	<ul style="list-style-type: none"> - R&D manager Philips on site for 3 months - HR and Integration manager on site - Regular communication - Gatekeeping role of GM - Clear direction 	
Sun	<ul style="list-style-type: none"> - Installed as Philips competence center of network controls - Documentation - Shield from overload of requests and visits -Rotation programs -Combined projects 	C	<ul style="list-style-type: none"> - Limit of time to share - Knowledge strategy was thought of after close 	<ul style="list-style-type: none"> - Center of Competence - Rotation programs - Combined projects 	

As proposed in literature social networks and coordination should enhance commitment. However, not the social networks as such seem to be important but the relationships build. Regular communication on the progress and the future reduces uncertainty, like the ambassadors program, and thereby increasing employees' attitude. This finding is in line with theory in which communication is suggested to stimulate knowledge transfer.

At last, transfer can only take place when there is interaction between Philips and the acquired business. With cross-moves, rotational programs and collaborative projects this is established. Remarkable is that Philips is active in doing cross-moves, but only from Philips to the acquired company and vice versa hardly takes place (see Table 9).

Improvement areas

In the mutual interaction that is necessary to teach and to learn critical knowledge the time people have to acquaint the knowledge is of high importance but a difficult aspect. First, one needs time to get familiar to the knowledge to be able to apply it. Second, the time it takes to teach or learn also means that those persons do not spend time on their business which can disrupt innovation. Philips has to be careful by overloading employees with work. A careful and integrated process has to be followed to coordinate this and set the priorities at the time Philips thinks it suits best. In case of KI first the identification and retention stage have to be fulfilled before obtaining for transfer. This allows employees to secure their knowledge within the company itself, getting used to Philips and building relationships after which they have time to share their knowledge and work together.

Providing a clear direction and communicating this regularly gives employees the coordination they need. If correctly executed, regular communication also diminishes uncertainty about the new company which influences the willingness and motivation to share. Involving Philips employees shows employees of the acquired company that Philips takes them serious. A last area in which there is much

to win are cross-moves or rotational programs. This shows Philips invests in them and close collaboration increases the mutual knowledge transfer.

Table 9 Overview cross moves to Philips

Acquisition	Date closing	Total # employees at close	# of Philips employees	%	# of cross-moves to Philips	%
Moon	Jul-09	45	1	2,222%	0	0,00%
Tyler	Apr-09	46	1	2,174%	0	0,00%
Messenger	Dec-10	39	2	5,128%	0	0,00%
Delight	Dec-10	400	6	1,500%	0	0,00%
Sun	Mar-09	130	6	4,615%	2	1,54%
Snowflake	Aug-11	110	0	0,000%	0	0,00%

4.3.4. Knowledge application

The application of knowledge is the stage in which the knowledge actually creates value. The pattern which is revealed by the Table shows again that when no tough assessment has been done regarding the knowledge identification there are many challenges to conquer before the technological knowledge is ready to be applied. One of them is to transition the products from an inventive R&D stage into a marketable product.

However, in case of Snowflake and Sun which were relatively new knowledge areas Philips decided to appoint them as platform on which Philips could build on and had to be made compatible to Philips products and either accessing instead of acquiring their knowledge (Grant & Baden-Fuller, 2004).

Improvement areas

The application stage is the stage in which the actual knowledge synergizes and creates value. Nevertheless, as shown in table 10 knowledge application is in progress or not initialized yet. Here is an important link to the identification of knowledge since these outcomes should determine the strategy to follow regarding knowledge application. The knowledge identification stage should have defined both knowledge bases – both Philips and of the acquired company- and after the combination of the companies together they should define a combined strategy of how to combine the knowledge bases into a marketable product. Since the application itself is dependent on the company characteristics there is no ‘best practice’ mechanism. Nevertheless, developing a strategy and adjusting this strategy with the ongoing knowledge transfer is necessary in successfully applying knowledge and definitely an area in which Philips can create much value.

Table 10 Cross case analysis knowledge application

Acquisition	Phase	Current process	Pitfalls	Empirical success mechanisms	Theoretical success mechanisms
Moon	Not applied	- Philips control systems are moving towards BACnet technology	- Transition products to solutions - No clearly defined plan and execution		- Strategic posture by preventing from the Not Invented Here syndrome and stimulating openness. - Provide direction by giving directives and rules - Provide routines by coordination
Tyler	PC	- Refining and commercialization of products - Connect with doctors, research sites and clinical research centers - Connect to stakeholders	- No profitable business model; wrong estimation		
Messenger	Not applied	- Change of business model - Service sold together with Moonlight products	- Initial idea of application did not happen	- Adjusting strategy by Philips and Messenger	
Delight	PC	- Philips LED technology integrated in product - Philips marketing and sales competencies to sell Delight products	- Process slowed down by major product releases Philips	- Philips marketing and sales competences in Delight - Collaborating in new project	
Snowflake	PC	-Philips features added to product - Built on product to be able to use it as platform		- Usage of Philips features into Snowflake's product - Building on the existing product	
Sun	PC	- Solutions network allows for Philips product - Focus on own area	- Focus on own business	- Sun's solutions network allows for Philips products	

4.3.5. Knowledge creation

Exemplar is that in each case Philips invested in the companies to give them the opportunity to grow and create new knowledge (see Table 11). Two mechanisms seem to be used regularly. First, hiring external employees with a similar or complementary knowledge base to gain new external knowledge and secondly by developing a long term product roadmap which would enhance innovation. By putting innovative roadmaps in place a more consistent and robust innovation process is built. Nevertheless, innovation in many cases is much slower because of the decision-making time and the different reporting lines caused by being part of a multinational organization.

Next to these mechanisms, maintaining an external network with universities and R&D centers help in the ongoing process of knowledge creation.

Though, a limiting situation in this creation stage is when the acquired business has no direct lines with the acquiring business but might have with other Philips business groups. Every group has its own budget and has to allocate this budget to marketable products in line with their strategy. When this is not the case, there is no budget available to invest in the acquisition and create new knowledge.

Table 11 Cross case analysis knowledge creation

Acquisition	Phase	Current process	Pitfalls	Empirical success mechanisms	Theoretical success mechanisms
Moon	Not applied	- Extended R&D center by hiring more employees - Install product roadmaps	- Many levels of approval for decisions - Different reporting lines; no alignment - Time spend on Philips requests	- Product roadmaps in place	- Large and diverse experience base leads to different ways of thinking of doing things and recognizes opportunities
Tyler	Not applied	Long term intention to make the products interact with other products	- Concentrate on refining and commercializing		
Messenger	PC	- Hiring new employees - Remake of products to make them compatible with Moonlight products	- Business group is not compatible with Messenger products - No budget to invest because no commercialization possibilities	- Hiring new people - Make products compatible	
Delight	PC	- Investing in R&D - Hiring new employees with chemical competences - Install alliances with Philips knowledge centers - Intense collaboration acq BU		- Hiring new people with right competences - Alliances with R&D centers with experts - Collaboration with business group - Innovative roadmap	
Snowflake	PC	- Hiring new employees - Expected launch of innovation end this year - Maintain network of universities		- Network of universities - Hiring new people	
Sun	PC	- Ongoing creation of new solutions, networks, interfaces - Hiring new employees with same competences - One hour a week to spend on 'hobbying'		- Listen to market needs - Hiring new people with same qualities as key people	

Improvement areas

To be able to create new knowledge and at the same time comply with all Philips requests enough resources are mandatory. Therefore, hiring new capable people is often done to obtain the extra resources and time which is needed in order to create new knowledge. Philips should continue hiring external employees but does have to keep in mind these employees have to possess knowledge which is similar or complementary to the existing organizational knowledge base. A profound innovative roadmap enhances product development and thereby innovation.

To be able to attract external resources and maintaining a growth strategy Philips has to invest in the acquired companies and give them budget to obtain their goals. Philips should consider to release some budget to search for opportunities which are directly or indirectly aligned with the Philips business group strategy.

Furthermore, both external and internal relationships with R&D centers and universities would help in creating new knowledge as supported by theory.

4.3.6. Knowledge integration determining variables

In literature both experience and the sort of knowledge base are mentioned as variables influencing learning. Therefore, this section will handle them separately to define which effect it has on the integration of knowledge. Table 12 provides an overview of the cross case analysis of the KI determining variables.

4.2.6.1. Knowledge base

The knowledge base is proved to be of high importance from the perspective of knowledge integration. In few cases this has determined the success or less successful knowledge integration. While Philips has the intention to purchase complementary technology acquisitions it might be otherwise. If the knowledge base is different this can have two causes; first, the acquired companies have a different business model which is not directly compatible with and known by Philips. Secondly, before purchase there has not been a real assessment of the existing knowledge. This knowledge might be different of what was expected which affects the usability of the integration strategy and on first sight one might assume having a different knowledge base does not matter in case of KI in acquisitions. However, remarkable is that the acquisitions marked as 'very good' both obtain a different knowledge platform but also both are installed as platform on which Philips builds on. Thus, one might consider the PMI strategy and the knowledge base are indirectly connected and influence the KI success.

4.2.6.2. Experience

Experience can also be found as a very important determinant of knowledge integration success. In all fields experience is essential, but nevertheless does not always affects knowledge integration positively. In the cases in which there was an existing relationship and thus both parties had experience with each other's approaches and philosophies knowledge integration was not that successful. Philips relied too much on this experience and lacked in doing a tough assessment. Further, this assessment has to be done by an expert on the field of knowledge the company pursues and has to be able to do a critical review.

At the retention phase experience plays a role in identifying the key persons and to recognize the needs of a small company. Experience in leading both small companies as experience in being an employee of Philips did make a difference. Being able to serve both goals and identify the needs and uncertainties increases employee attitude and thus the willingness and openness to share and to commit to Philips. This experience also enables the Philips acquiring business or the acquired companies GM to say no to all the requests from Philips side.

Regarding application and creation of knowledge experience does not play a bigger role than it should when acting in a normal business. However, putting a R&D lead in the company does help combining both technologies and identifying new opportunities.

4.3.6.3. Strategic intention

It appears that the strategic intentions of Philips and the acquired company often are far ahead of each other. As (Alvarez & Barney, 2001) already stated the main reasons for small technology companies to be acquired is for money – investment – or growth opportunities. On the other side, Philips intention is to get access to a –for Philips relatively new – technology, area or business model. Because the intentions of the acquired company are growth-driven but those of Philips mostly capability-driven there is some friction.

Table 12 Cross case analysis organizational learning determinants and strategy determining factors

Acquisition	Organizational learning determinants	Strategy determining factors
Moon US 2009 45 employees Founded: 1985	Knowledge base: Complementary, but the systems could not connect – i.e. communication, business model. Experience: Early collaboration	PMI strategy: strengthen network solutions domain Intention acq: Getting access to technology Intention tar: Usage of distribution channels and Philips brand
Tyler Canada 2009 Founded: 1996 Family-owned business 51 employees	Knowledge base: Different Experience: Former relation as investor for 7/8 years	PMI strategy: quickly integrate within Philips Intention acq: Transition of staff to Philips, sell viable product Intention tar: Research funding
Messenger US 2010 39 employees Founded: 2003	Knowledge base: Different, i.e. business model Experience: Founded by a former Moonlight employee, acquired after three attempts	PMI strategy: Reversed integration; learn about product and platform and implement Moonlight technology in platform Intention acq: Combining software service platform with Moonlight Intention tar: Offer ROI to investors, access to Philips resources
Delight US 2010 400 employees Founded:	Knowledge base: Different, i.e. no previous chemical knowledge Experience:	PMI strategy: Sell the different products together to a broader network Intention acq: Brand and network access Intention tar: Not spoken to
Snowflake Sweden 2011 104 employees Founded: 1979	Knowledge base: Different Experience: Former acquisition	PMI strategy: Integrate some parts quickly but remain R&D and Operations; follow a growth strategy Intention acq: Technique had to be implemented in relatively new Philips division Intention tar: Global access
Sun Australia 2009 130 employees Founded: 1989	Knowledge base: Different, i.e. business model Experience:	PMI strategy: Changed immediately after close; establish Sun as network controls platform Intention acq: Require a solution network far ahead of Philips Intention tar: Growth strategy

One might notice that it seems the more successful the cases are the more complementary the intentions of both Philips and the acquired company are. When looking at Moon, Philips intended to move the employees over to Philips as quickly as possible while Tyler only looked for funding. These intentions are not compatible in one strategy which might lead to disappointment since expectations are not met. In this case, from the beginning the each change had to be discussed and was rejected. In case of Snowflake both intended a growth strategy which made it easier to commit to KI. When focusing on Sun, the strategy has been adjusted after realizing the intended strategy would not fit. Nevertheless, the intention and the corresponding PMI strategy seem to have influence on KI success.

4.3.6.4. PMI strategy

In case of growth intentions a 'holding' or 'preservation' strategy should be most appropriate. Especially since most technological companies' CEO derives his business as unique and should be shielded towards the Philips bureaucracy. However, as already stated in section 2.1.1. Philips could best adopt a preservation transforming into a symbiosis strategy. This leads to different expectations of how the merged company will look like and therefore the intention to knowledge integration as also stated above. There is a close relation between the strategic intentions and the PMI strategy affecting KI success.

4.4. Overall conclusion cross-case analysis

This chapter aims to answer RQ2 and RQ3. In answering RQ 2 *How does Philips currently deal with the knowledge integration process in technology-based acquisitions?* and RQ 3: *What should Philips improve in order to facilitate an effective knowledge integration process within technology acquisitions?* the tables 5 till 12 together give an answer on that question. Another conclusion can be drawn when giving attention to the year in which the company is acquired (see table 13) clear differences can be found. Philips is learning regarding the attention paid to knowledge integration. However, this is captured in many underlying processes and not in a clearly defined knowledge integration process itself. Mechanisms are put in place to capture some knowledge elements but it is not captured in a standardized process itself. Since the knowledge integration process is a process and requires different steps that have to be made, not having a clear structure leads to uncertainty and expectations that cannot be made real.

When closely looking into the –un-intended execution of each KI stage a clear pattern can be seen. First, the identification of knowledge is present in all successful cases and should be executed in the pre-combination phase. The retention of knowledge is the acknowledged within all Philips cases to be of importance. This KI stage is clearly present in all cases and has to be started in the pre-combination phase, but can also continue during the combination phase itself. The transfer stage is a prerequisite for effective KI but hard to obtain. After identifying the critical knowledge and securing the knowledge within the acquired company the transfer stage will enhance knowledge sharing. Currently Philips stimulates employees to share their knowledge from the combination phase which might lead to an overload of requests and thereby disruption of a firms business as usual. The application stage hereafter is in process or not applied yet. This stage is very dependent on the right execution of the identification and transfer stage which might explain this outcome. Another explanation may be the application stage itself is not a stage but a sequence of the right execution of the identification and transfer stages. The

last stage, creation, is clearly present in the successful cases but not in the less successful cases. This stage does not seem to be dependent of any other stage and can follow an ongoing and long term innovation plan.

Table 13 Overview execution KI stages in the M&A integration process

Acquisition	Pre-combination	Combination	Post-combination	Not applied yet
Moon	(Identification) – retention	Transfer	Transfer	Application - creation
Tyler	(Identification) – Retention	Retention – Transfer	Identification – Transfer- Application	Creation
Messenger	Identification - Retention		Transfer – (Creation)	Application
Delight	Identification - Retention	Retention – Transfer	(Application) - Creation	
Snowflake	Identification - Retention	(Transfer)	(Application) – (Creation)	
Sun	Identification – Retention	(Transfer)	(Application) - Creation	

Another remarkable conclusion is that size does matter. The bigger the acquired company, the more time and effort is put into that company to make it work. This while small companies often do not have enough resources to comply with all Philips requests for integration and therefore perform less successful in knowledge integration.

For Philips opportunities lay ahead in the field of KI. After analyzing per variable, success mechanisms and pitfalls were revealed. After comparing these outcomes with the literature, some remarkable patterns did appear. The area in which Philips currently has much to win are knowledge identification and knowledge creation, but also the areas of knowledge transfer and application deserves more attention.

Chapter 5 Conclusions & Discussion

As presented in the introduction of this thesis, the aim of this research is to describe the current situation and explore the scope of KM in acquisitions and ways to manage KM practices in acquisitions – such as identification, retention, transfer, application and creation of knowledge – effectively. Based on this objective the following research question is formulated: *How should Philips facilitate the knowledge integration process of innovative acquired firms in order to continuously benefit from its innovativeness?*

This chapter provides an overall conclusion to the findings and gives an answer to this research question accordingly. First, section 5.1. summarizes the empirical findings from chapter four and provides an overall conclusion and corresponding recommendations. It is followed by section 5.2. in which the theoretical and managerial implications are discussed. This part clarifies how this study contributes to existing academic knowledge and literature and how it can be translated into practice. The limitations and recommendations for further research are respectively addressed in section 5.3. and 5.4.

5.1. Conclusions and recommendations

Primarily RQ1 is answered by means of a literature review which identified the most important knowledge integration elements which could be applicable to acquisitions - i.e. identification, retention, transfer, application and creation - and therefore served as the foundation for the remaining part of the research. The elements identification, retention, transfer and creation are proven to be required within a KI process. In case of knowledge application we cannot conclude anything, but one might assume this variable is an sequence of the identification and transfer stages and therefore alone does not have an effect on the integration of knowledge. Furthermore, these elements are used to explain the current way Philips handles knowledge. Not in every case all were present but clear patterns recognize that when one of the elements is missing or partly executed the knowledge integration process are not qualified as best. The description of all current elements in the cases regarding knowledge integration acknowledged the importance of most of the mechanisms used to perceive each stage of the process. However, the exploratory nature of this research also identified novel concepts particular important in innovative acquisitions; such as leadership and relationship building. It also recognized the mechanisms investigated are not only applicable to one stage but also may take longer, move on into the next stage. The KI stages are not as marked out as expected.

In order to answer the main question of this study the sub questions first had to be answered. RQ 1 has been answered with help of a literature review in section 2. RQ 2 has been described extensively in section 4.1 and is analyzed in section 4.2, which also elaborates on RQ 3. The main conclusions regarding each of the predefined knowledge integration elements are provided below, followed by a recommended framework for Philips of knowledge integration in innovative acquisitions.

5.1.1. Knowledge identification

As in many cases, also in this study it can be concluded that the starting point can be considered as the most important element by its determination of the further progress of all other stages. The carefulness

put in the right identification of knowledge even has its influence on all elements separately. Therefore, a tough pre-assessment process of the possessed knowledge is found as prerequisite for knowledge integration success. An important note thereby is that one should not only focus on the target company but also on the acquiring business group. By analyzing both knowledge bases complementarities and differences can be identified before the deal is closed. However, identification itself is not enough. When there is enough overlap found to continue with the process it is of high importance to not only recognize the potential differences but also actively respond and adjust to these differences.

Another considerable notice is the change of leadership that occurs during the DD and the PMI period. When changing leadership and involvement on the knowledge identification all what is known at that moment by Philips has to be transferred to the newly involved and thus requires another knowledge transfer. By involving a leader which is closely involved in both the knowledge identification stage before close as the execution afterwards and has close connections with the acquiring business group, this can be prevented.

The ones who should be involved in this process are the M&A team – because of their role in the whole Due Diligence process -, the R&D lead of the acquiring business group – for his expertise of the business as in Philips and to find possible application opportunities-, and the responsible PM – which is responsible for the overall project management and thus is able to adjust the PMI strategy.

However, it would be recommended to appoint a specific knowledge integration manager or extend the current task of the R&D lead and let him be closely involved in critically assessing the knowledge, but also let him be involved afterwards to act as a connection point between the business and the acquired company. This KI manager should be responsible for the identification of critical knowledge, execution of a gap-analysis and the adjustment of the strategy towards its outcomes. At the same time he should be involved in the designation of key-persons, in close collaboration with the MT or CEO of the acquired company. The appointed KI manager should be responsible for the careful execution of all other KI stages, if it is necessary to transfer knowledge. Since KI involves all disciplines – such as HR, R&D, Finance- he is also the connection point between the different disciplines. In doing so, a holistic and robust KI approach can be performed. A work document should be maintained and assure clarity, consistency and long-term focus. Nowadays, it happens that the expert involved during the DD has done his job when assessing the knowledge.

After identifying the critical knowledge together with the strategic rationale of the purchase, the ones possessing the critical knowledge have to be identified so one knows who to retain. These key-persons already have to be designated before the deal is closed so their role is clear on forehand and realistic expectations are set. This has to be done by both Philips and the acquired company.

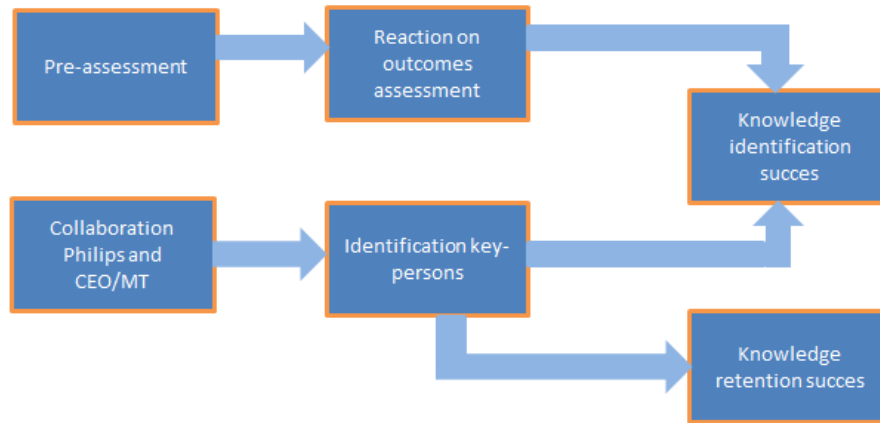


Figure 7 Determinants of knowledge identification success and the relation with knowledge retention

5.1.2. Knowledge retention

One of the discussions in this stage is whether to maintain the CEO and CFO or CTO or let them leave. Hereby a few aspects should be taken into account; leadership style and commitment towards the acquisition. Assessing these elements on forehand will help in considering if these persons are still on the right place after being purchased by Philips. Nevertheless, these persons influence on the employees should also be taken into account. When this influence is high, and one does not meet the above mentioned criteria replacement on a more suitable position – with agreement of the relevant key person – for at least a transition period should be considered.

In order to keep the key persons Philips is very generous by distributing financial retention packages. This helps for the short term, but for long term some mechanisms have to be put in place to enhance autonomy, status and commitment. One of the most effective mechanisms is involvement in the decision-making process and being part of the new management team. This does not only remains key persons but also makes knowledge transfer much easier by creating trust, openness and willingness to share. Besides, by having both Philips as acquired companies' employees involved in decision making will stimulate collaboration, serving both goals and therefore will provide clear direction and coordination. Hence, also Philips employees have to take place in the MT which requires replacement of existing employees. Most common functions to be fulfilled by Philips employees are HR, Finance and - dependent of the strategic intention- Marketing or Sales and possibly R&D since these functions are first to be integrated. Including both Philips and acquired company's employees in the MT will enhance communication, coordination and direction. The focus of the business can be retained while the Philips employees shield the company from unnecessary requests from Philips side. The involved Philips MT members can decide which functions and systems are necessary to integrate and which ones can wait until the business is used to the new organization.

5.1.3. Knowledge transfer

The knowledge transfer stage is the most difficult one. This is where both companies have decided what knowledge is critical, have secured this knowledge –documented or by retaining the persons that possess that knowledge- within the acquired company and at this stage the knowledge has to be

transferred and shared from one company to the other. In this stage particularly, people management is important. Documentation can be sent and shared, but convincing people to share their specific knowledge is much more challenging.

In fact, the previous elements are determinant for the actual knowledge transfer and thus need to be accomplished before the real transfer can start. The relations built in the previous steps are necessary to get all parties aligned. The knowledge transfer phase is most complicated since all employees have to contribute, both from the acquired company as from Philips side. This step also is the biggest challenge and the main point where the paradox of sharing knowledge and at the same time remaining innovative emerges.

Philips has to be careful with their requests for information. The main reason why acquired companies cannot focus on their business and being innovative is because, of all the requests from Philips side, they simply do not have enough resources to do both. This major conclusion is evident in knowledge integration success but overall acquisition success of innovative acquired firms specifically. The tension existing by the requests from the Philips business group side and the protection to those requests does not stimulate knowledge transfer. Therefore, the KI lead – as proposed in 5.1.1.- should be responsible by coordinating this process together with the CEO – whereas replaced by Philips or still in position. Having one end responsible specifically focused on knowledge transfer should set clear direction and coordination. Not direction and coordination as such are determinant, but the leadership who provides them. People cannot spend much time to integration activities and focusing in their own business at the same time. Timing is the key word in this challenge. One can perform the identification and retention stage parallel to the necessary integration activities and has to be fulfilled before heading over towards the knowledge transfer stage, i.e. collaborative projects and rotational programs.

Furthermore, regular communication should be provided on the status of the integration process again to provide the necessary direction and to manage expectations and taking away uncertainty. If employees know what is ahead of them and understand the background of all changes they will be more committed, willing and open to share their knowledge and to collaborate with other Philips parties. Nevertheless, one must not forget also to communicate with the involved Philips employees and include them as well in the future plans. This interaction is obvious essential in transferring knowledge and mutual learning.

5.1.4. Knowledge application

Not many conclusions can be drawn from the application of knowledge simply because there has not been that much real application. This has several reasons which are highly influenced by the knowledge identification phase. First, after close one sometimes recognizes knowledge or technological differences which were not identified or not reacted on beforehand and afterwards all seemed not to be compatible with each other and take much time and money to change. This also increases employee resistance because change in strategy might be needed, which encourages uncertainty and resistance by not reaching the expectations. Second, it might be the objective to commercialize the technology or products of the acquired company which requires some kind of maturity of the company. This must not be pushed but should be carefully done by taken the steps as proposed; first identifying where the gaps are and what should change, and then share the required knowledge, processes and templates with a

the potential to create a product development roadmap towards innovation. Thus, one might consider application of knowledge as a sequel of the identification and transfer stages but itself cannot be influenced.

5.1.5. Knowledge creation

Knowledge creation is already acknowledged as an important stage and acquired companies often get the chance to hire extra employees but it seems to be hard to effectively stimulate innovation in this stage. The main reason is that one sees knowledge creation as ‘hobbying’ which not delivers immediate directly visible value. Therefore, hardly any budget is released with as main goal to create real new knowledge. Regular meetings between the KI manager and the CFO could discuss this problem and together find opportunities to resolve this.

However, elements stimulating knowledge creation are the hiring of external capable employees to increase the resource force, establish connections with internal and external R&D centers and universities and stay in close touch with both the market as the business group to remain agile in recognizing new opportunities.

Here also the innovative roadmaps, prepared in the knowledge application phase, are fully rolled out and might allow for budgetary allowances.

5.1.6. Recommended knowledge integration approach in acquisitions

Together, one of the first notes to mention is knowledge is an asset and knowledge needs to be acknowledged as such to be taken advantage of. However, in contrast to other assets knowledge does not disappear when sharing or using it. It only disseminates. Therefore, one might even consider knowledge as the biggest value creation asset.

A second remark is that the knowledge integration process itself is not as static as proposed. The stages are not perse sequenced but might even have to be executed at the same time. Within acquisitions timing is a very important factor – as is stated in section 4.3. Hence, knowledge identification and knowledge retention determine the execution success of the phases afterwards; knowledge transfer, knowledge application and knowledge creation. These first phases therefore are more action-oriented and short-term, while the following phases are process-oriented and take more time to fully execute.

To allow for actual integration of knowledge and addressing expectations management, both parties have to closely collaborate in executing the stages. The further in the process, the more responsibilities Philips and the acquired company have to jointly execute. The Philips-specific actions are important initial facilitators for the processes that follow. Figure 8 – on the next page- gives an extended overview of how Philips could facilitate its knowledge integration process.

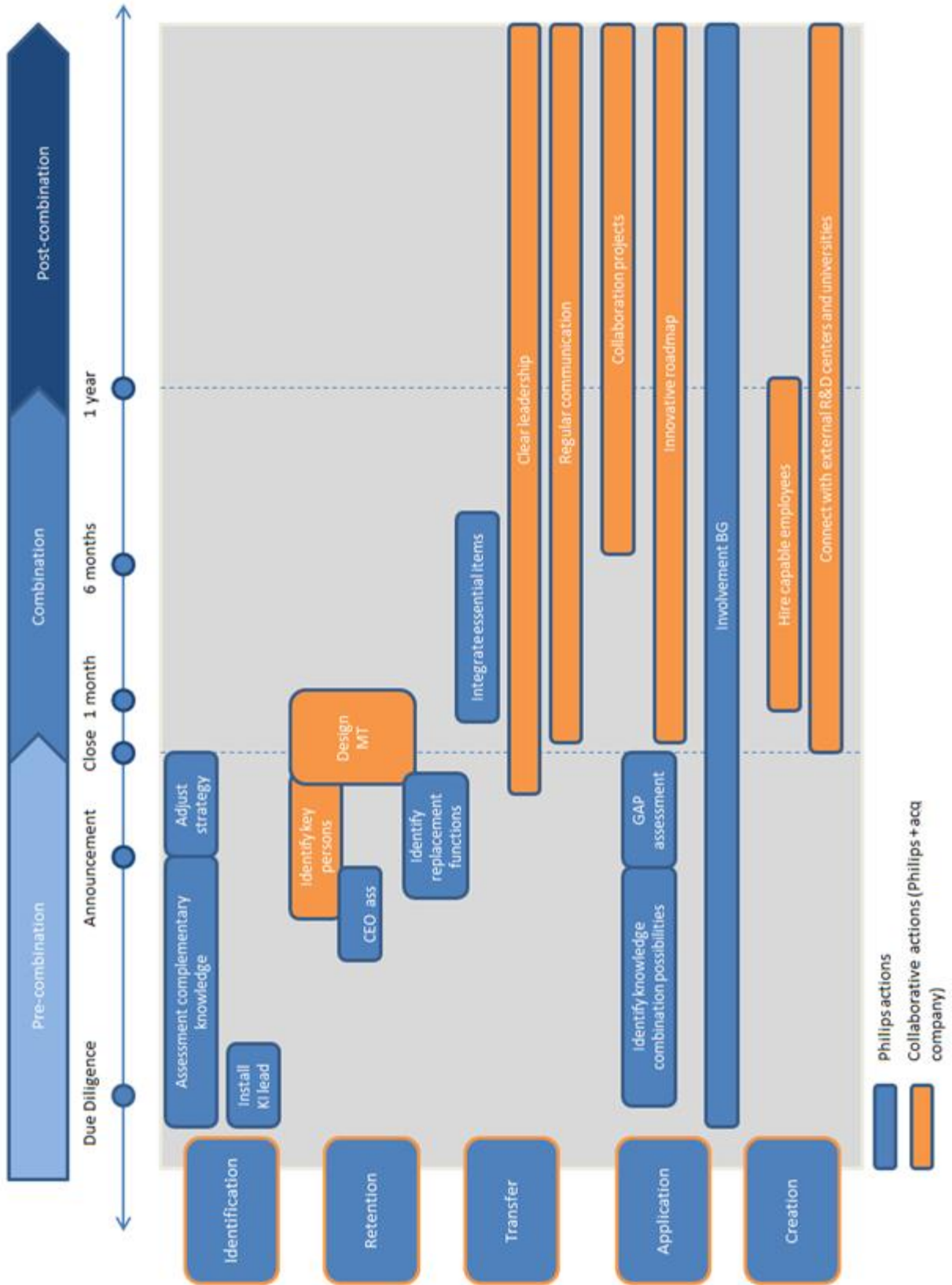


Figure 8 Timeline recommended knowledge integration approach

5.2. Discussion

The quest to find answers on the research questions mentioned in the previous section is relevant for both practical and scientific reasons.

5.2.1. Theoretical implications

This study implies some important and novel contributions to the current literature by addressing a frequently mentioned gap. Given the paradox of rapidly increasing M&A and its high-failure rate (Nogeste, 2010; Bartel, Van Frederikslust, & Schenk, 2007) there are still significant opportunities for M&A research (Cartwright & Schoenberg, 2006). In the last two decades the focus in M&A literature already gradually changed from the antecedents of M&A to the processes and outcomes of post-merger integration (Shimizu, Hitt, Vaidyanath, & Pisano, 2004). However, there is still an overall need for improvement regarding post-merger management. With only a few researchers focusing on knowledge management in acquisitions (Bhagat, Kedia, Harveston, & Triandis, 2002; Bresman, Birkinshaw, & Nobel, 1999; Vermeulen & Barkema, 2001) this area remains quite unexplored. These studies have respectively concentrated on cultural variations, knowledge transfer and acquisition expansion possibilities by opting for 'greenfields' but did not focus on the process behind knowledge management, and fail to answer on the 'how' question. This study aimed to answer this question by providing a knowledge integration approach accompanied by the mechanisms who determine the successfulness of these stages.

Further on, this study aims to contribute to M&A literature by concentrating on knowledge management and, specifically, how to remain the innovative capabilities of acquired companies. The innovation process is embedded within the knowledge integration process and especially mentioned in the stages retention – which allows for continuation of the business which gives the opportunity to prevent from disruption of innovation- and the creation stage – which specifies on the ongoing creation of knowledge and thereby remaining the capabilities of innovation. This integrated process has not been evolved as such. Many researchers did elaborate on the relation between knowledge, learning and innovation (Ahuja & Katilla, 2001; Chen & Huang, 2009; Cohen & Levinthal, 1990; Crossan, Lane, & White, 1999; King W. , 2009; Kogut & Zander, 1992; Nonaka & Takeuchi, 1995; Scarbrough, 2003; Subramiam & Youndt, 2005) but focused on a part of this existing relationship, such as transfer or creation. With this study one could conclude a knowledge integration process is a flexible interaction process which includes several stages who are dependent of each other to successfully fulfill KI.

Accordingly, the relationships between the stages has not been mentioned in previous literature. Dalkir (2005) provides a process cycle including knowledge capture/ creation, sharing/ dissemination and acquisition/ application but this study assumes that application as such is not a stage but a result of the execution of the pre-phases- i.e. identification and transfer. Argote & Miron-Spektor (2011) on the other hand recognized the retention phase, but did not elaborate on the identification of knowledge. Resulting from this study, knowledge identification is the most important step for the KI process since it determines the whole process following.

This research also reveals clear recommendations on the mechanisms which determine the stage successfulness. As proposed in literature is a pre-assessment of high importance for the identification of knowledge. Nevertheless, two additions have to be added to this theory. First, this

research concluded that the pre-assessment itself is not determining but how the organization deals with the outcomes of this pre-assessment. Second, not only the acquired company has to be assessed on its critical knowledge base but also the acquiring business unit. Only in such a way a knowledge integration strategy can be really effective and both companies can optimally utilize each other's experience and knowledge bases.

Another conclusion regarding the KI mechanisms is the role leadership seems to play in the whole process. Much literature focused on the contingencies of the companies involved in KI but none has appointed the important role leaders –whether from the acquiring or acquired company- have and their influence on the success of KI.

Furthermore, this study not only focused on the KI stages and mechanisms but also provided determinants which have an effect on the execution of the KI stages. There is a relationship between the target and acquiring company's strategy and the PMI strategy which seem to influence the successfulness of the stages and therefore overall KI success. A striking remark can be made regarding the knowledge base. The compatibility of both knowledge bases are not necessary when obtaining for KI success but is contingent to underlying rationale of the companies.

This research will not only provide a process model of knowledge management, but especially concentrates on the paradox regarding the integration of acquired companies and the firms innovative capabilities after acquisition. Many researchers acknowledge this is a huge problem (Haspeslagh & Jamison, 1991; De Man & Duysters, 2005; Hitt, Hoskisson, Johnson, & Moesel, 1996) but fail to reach insights to the main pitfalls and addressing success factors. This study elaborates on this problem by focusing on actual knowledge integration whereby both the perspectives of the acquiring as the acquired company are taken into account. This study has examined successes and failures in knowledge integration of technological acquisitions and provided new insights and a clear model for knowledge integration within technology acquisitions without destroying their innovative capabilities.

5.2.2. Managerial implications

Besides its contribution to scientific knowledge at the intersection of M&A and KM, this study's objective is to contribute to management practice. However this study elaborates on Philips methods, more companies whom are regularly active in acquiring knowledge intensive companies might have advantage from this research. The first and most important learning other companies may have from this study is to acknowledge there is a need for a specified to knowledge integration. Unless different industries, different areas and different kind of companies, when there is a need to integrate knowledge one perceives insights in possible pitfalls but also into mechanisms – after made this applicable to the specific situation and company – which can be successful for them as well or at least serve as basis to build on to.

Next to the acknowledgement of the need for a specified approach to knowledge integration this study also gives insights in how to remain acquisition's strengths and combine it with the strengths of the acquiring company to reach to a higher value together. This study provides a knowledge integration background and practical tools which can help companies to gain insights in how to coop with this value creating change.

5.3. Limitations

This section will elaborate on the limitations of the executed study. One of the most important limitations is the generalizability, which is a limitation of any qualitative research, and is rather low. Because this research is performed within only one company, Philips, and no benchmarking has been done generalizing across companies will be hard. This is due to a few reasons; first, because there is not one best practice, companies differ in their procedures regarding acquisitions which decrease the opportunity to compare. However, when going into these configurations explanatory research is required. This research exploited a descriptive and exploratory goal which allowed to answer the 'how' question and resulted in a 'best practice' approach. Nevertheless, this approach touches the underlying rationale and possible solutions need to be adjusted to each single case. Second, Philips operates in a specific industry and will therefore differ in their intentions and approaches for purchasing companies in comparison with other industries. Therefore the conclusions drawn from cannot be made generalizable to other industries.

Nevertheless, by using semi-structured interview protocols and both the case and variable analysis in the cross-case analysis the internal generalizability is established as good as possible (Yin, 2009; Miles & Huberman, 1994). but is also limited to a few boundaries. First, no acquisition is the same and every case has its own unique specifics. Second, only six cases are investigated in-depth and have been selected by the technology factor. For every case only three to five people are questioned, of which some interviewees were involved in multiple acquisitions. This allows both for validity – since the different acquisitions handled the same- but decreases validity when the interviewees were responsible for multiple functions within one acquisition. However, all interviewees represent different views which entail a complete picture and allow for cross-comparing among all functions.

Furthermore, the data collection method has been subject to the interviewer and response bias which might have distorted the answers of the interviewees and influenced the generalizability of the results as well (Saunders, Lewis, & Thornhill, 2009). However, section 3.4. also discussed various methods which have been undertaken to minimize these errors.

The last limitation of this study has to do with the time in which the study is executed. A cross-sectional study does not enable to investigate long term effects. A longitudinal approach could have given more insights in for example leadership, employee attitude, collaboration and success rates to change over time. Measuring these variables on multiple points in time enables analyzing the effect of each stage and corresponding relationships. When executing a longitudinal multiple case study in which also control cases are installed, also the actual success of these stages and its determinants can be measured. When companies know which variables affect a certain stages and has proven its success they can effectively and efficiently control their knowledge integration process in accomplishing synergies.

5.4. Future research directions

The first direction for future research would be to validate the proposed model to test if all variables act as they are supposed to and if the inter-variable connections are correct.

Since this research is primarily explorative of nature, the findings imply interesting ideas for future research. One of the most interesting and most challenging proposals for further research is to make knowledge integration measurable. The first step in this will be to quantify the in-between relationships of the variables proposed and gradually measure the effect of these variables on the knowledge integration success. The next step will be to quantify the contribution careful knowledge integration has on the overall acquisition success. Besides quantifying the relationships and the effectiveness of KI this study should be followed-up by an explanatory study to gain insights the reasoning behind and how the KI approach can be adjusted to these behaviors and expectations.

What has been noticed is that not only the intention and the PMI strategy determine KI success but one should also elaborate on the characteristics of each company since this investigation did found a difference in the acquired companies regarding size, maturity and whether it is a family business or not. A so-called configuration approach, which differentiates between the different sort of companies and underlying behaviors, should go beyond the general 'best practice' method and provide an adjusted KI approach. Accompanying with the organizational characteristics are the on-site leadership characteristics which seem to play an important role in the KI process. However, these factors have to be investigated in-depth before drawing conclusions.

Furthermore, timing has proven to play an important role in the balance between integration and remaining the innovativeness of the acquired company. It would be very interesting to further investigate this concept and its exact influences further on.

Next, this research investigated technological acquisitions. It might be interesting to also develop such frameworks for other types of acquisitions - allowing for different strategic rationales and different integration approaches -in order to see if such a framework can be generalizable to the entire field of acquisitions.

Finally, the research as have been conducted here can obtain stronger validity when a next study will include a larger respondent population from multiple companies in different industries.

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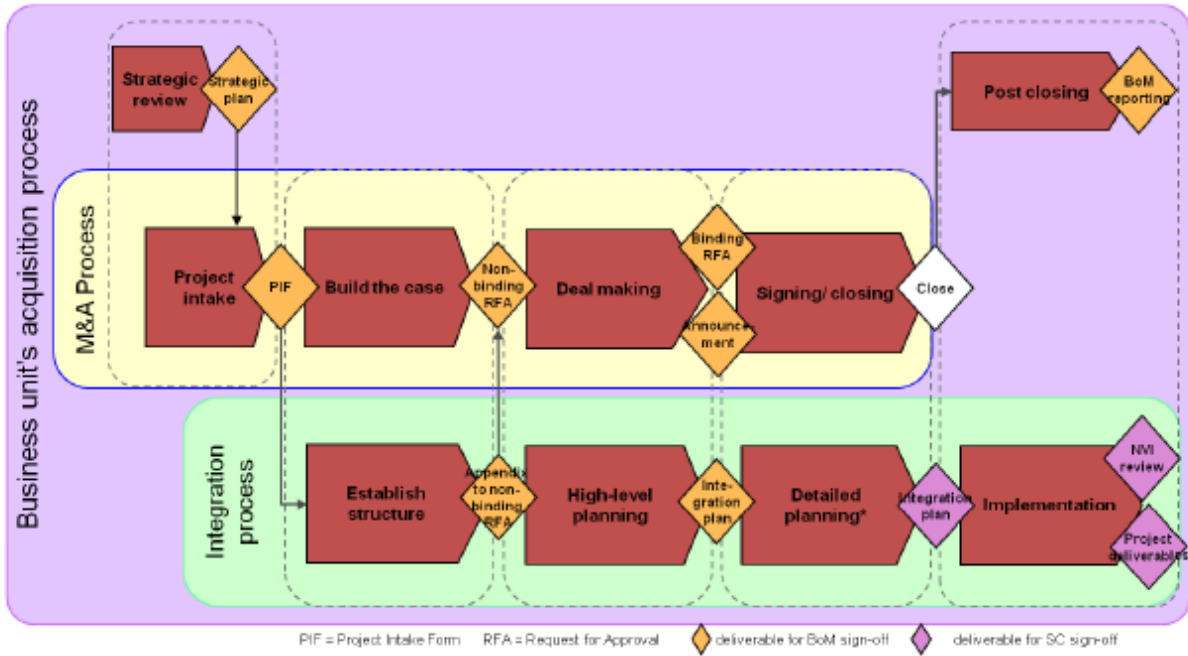
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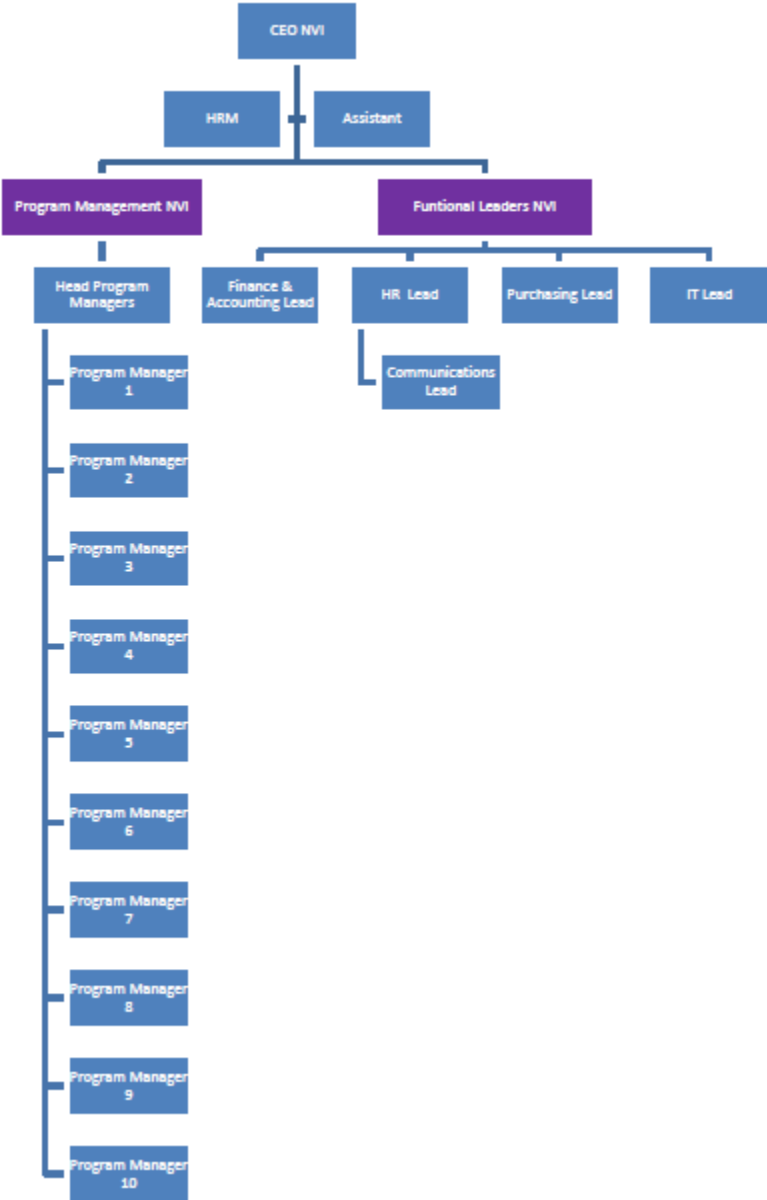
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Appendices

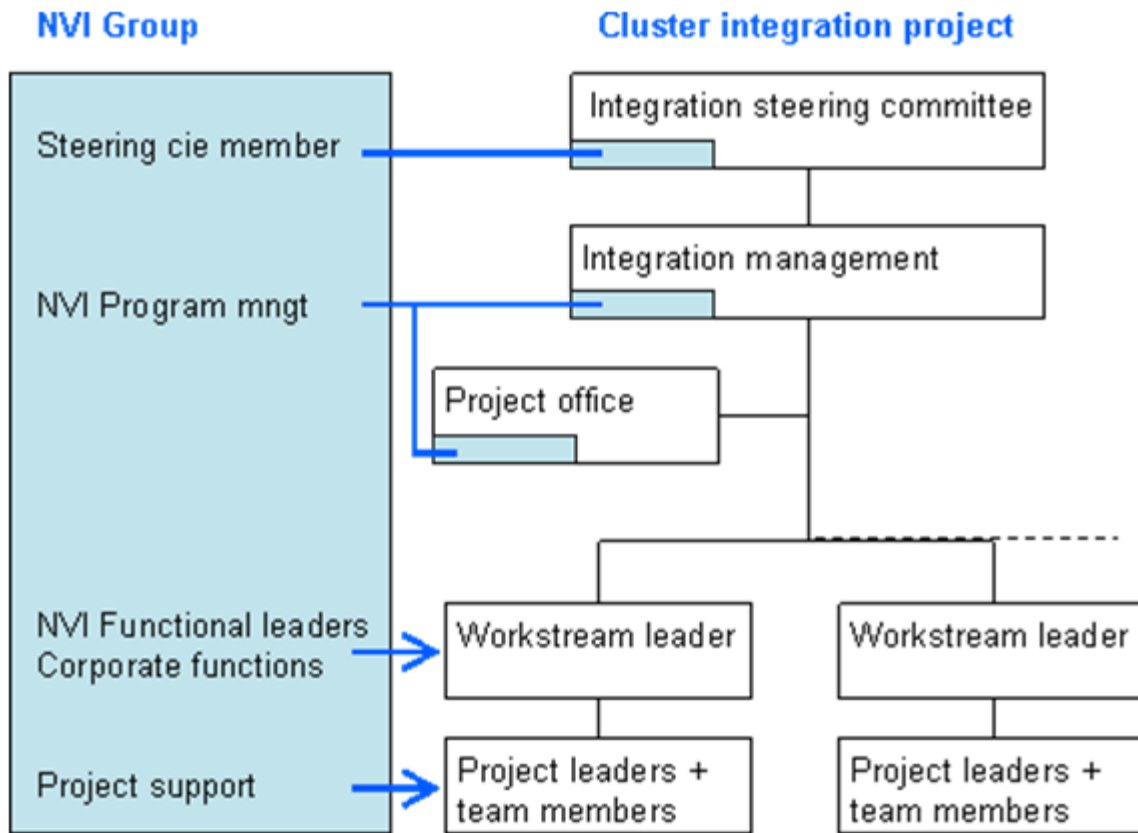
APPENDIX I. Philips Acquisition process



APPENDIX II. Philips New Venture Integration Organization Chart



APPENDIX III. Roles within the integration process of Philips



Links to regional & country organizations where required.

APPENDIX IV. Invitation survey

Dear (name),

We would like to invite you to fill in a preliminary survey regarding knowledge management and culture in acquisitions. The goal is to acquire case-specific insights regarding these subjects in order to set up a case selection for our graduation projects.

Because of the specificity of each acquisition we would kindly ask you to complete this survey for each of the acquisitions in which you have been or are involved as a Program Manager (one at a time, by accessing the same survey link a number of times equal to the number of acquisitions you have managed).

The survey contains 6 questions and will take approximately 5 minutes to fill in. We would really appreciate it if you would respond before Monday, March 20. Since the answers will help us to accelerate our graduation research, we need your input as soon as possible.

Thank you in advance!

Best regards,
Marije Keizer

APPENDIX V. Survey

Dear (name),

For our research about knowledge management and culture in acquisitions we would kindly ask you to answer the questions underneath regarding the acquisition(s) in which you were involved as a Program Manager. The goal of these questions is to get a clear overview of the recent acquisitions on selection criteria regarding knowledge integration within innovative acquired companies. The next stage is to rank the acquisitions on relevance after which the cases will be selected.

Thank you in advance!

Ioana and Marije

1. Please complete a separate survey for each acquisition for which you have been responsible as the Program Manager. For which acquisition do you want to complete this specific survey?

The respondent can choose between all the projects – confidential.

2. Acquisitions tend to be carried out for two reasons:

- To gain access to a new technology, to fill gaps in existing technologies or to enter new industries (technology-driven acquisitions).
- To gain market share, gain access to new markets or to consolidate a market portfolio (market-driven acquisition).

Was this acquisition initially technology- or market-driven?

<i>Technological</i>		<i>Both</i>	<i>Market</i>	
1	2	3	4	5

Comment:

3. According to literature research, knowledge is the most important resource of a company but this is not always acknowledged as such. Knowledge can be critical both within technology- as within market-driven acquisitions. Depending on the strategic rationale of the acquisition, critical knowledge has to be transferred in order to gain competitive advantage and to create value.

Did any specific effort need to be taken to transfer critical knowledge from this company to Philips?

No Yes

Comment:

4. The knowledge which is seen as critical has to be acquired, assimilated, translated and exploited by Philips in order to create value. Knowledge integration is fulfilled when Philips actively uses the new knowledge within its own business.

Was the critical knowledge integrated within Philips in this instance?

<i>No</i>	<i>Not really</i>	<i>Neutral</i>	<i>A bit</i>	<i>Yes</i>
1	2	3	4	5

Comment:

5. How would you define the quality of the knowledge integrated? Before Philips acquired it?

<i>Very good</i>	<i>Good</i>	<i>Barely acceptable</i>	<i>Poor</i>	<i>Very poor</i>	<i>N/A</i>
1	2	3	4	5	

Comment:

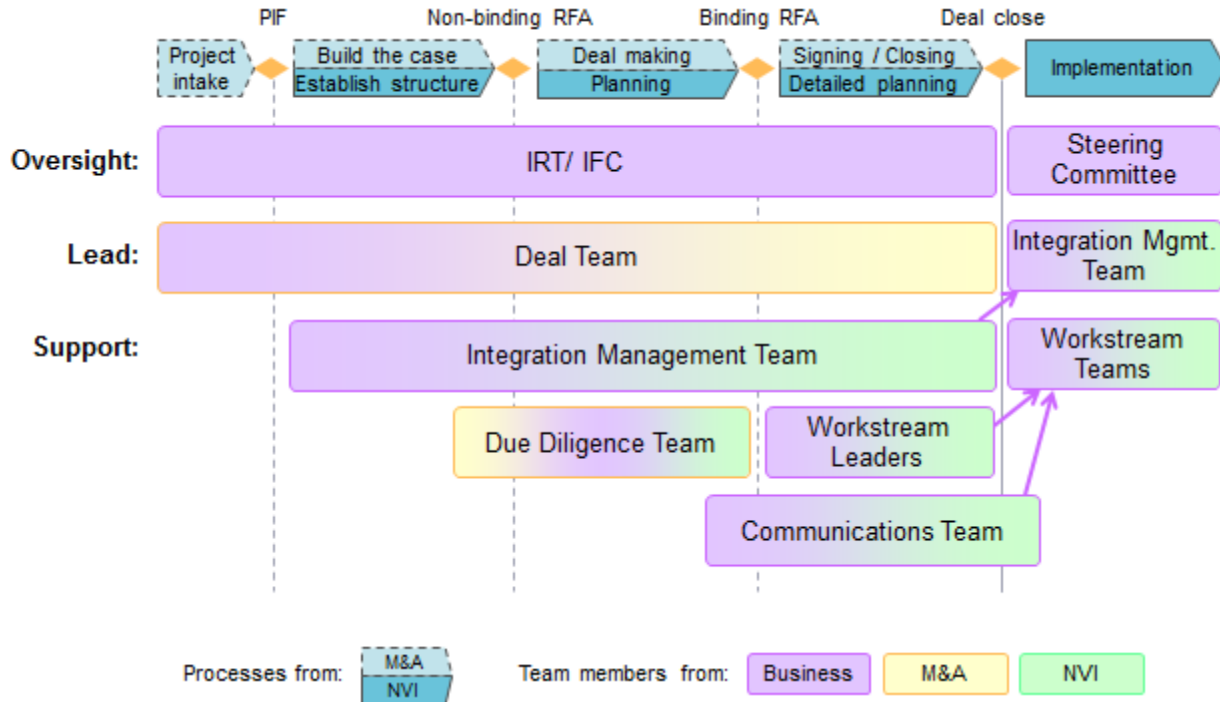
APPENDIX VI. Overview interviewees

Project	User name	Function	Date interview
Delight	PM1	Program Manager	4-5-2012
	BI1	Business Integration leader	8-5-2012
	HR lead1	HR workstream lead	11-5-2012
Sun	PM2	Program Manager	17-apr-12
	BI2	Business Integration leader	15-5-2012
	HR lead2	HR lead	2-5-2012
	R&D Lighting	Global R&D Lighting	15-5-2012
Messenger	PM3	Program Manager	1-5-2012
	BI3	Business Integration leader	3-5-2012
	HR lead3	HR workstream lead	21-5-2012
	CEO 3	(Former) CEO acquisition	10-5-2012
Moon	PM 4	Program Manager	1-5-2012
	BI 4	Business Integration leader	1-5-2012
	HR lead 4	HR workstream lead	22-5-2012
	CEO4	(Former) CEO acquisition	14-5-2012
	R&D Lighting	Global R&D Lighting	15-5-2012
	R&D4	R&D Manager	16-5-2012
Snowflake	PM 5	Program Manager	4-5-2012
	BI 5	Business Integration leader	9-5-2012
	HR lead 5	HR workstream lead	7-5-2012
	GM 5	General Manager	23-5-2012
Tyler	PM 6	Program Manager	4-5-2012
	BI 6	Business Integration leader	2-5-2012
	HR lead 6	HR workstream lead	2-5-2012
	GM 6	General Manager	25-5-2012
Other functions	Business Improvement	Sr. Dr. Business Improvement	2-5-2012
	M&A	Director M&A	21-5-2012

Appendix VII. Roles and responsibilities within the integration execution process of Philips

	Teams	Project roles	Key responsibilities
Integration strategy	Integration steering committee	<ul style="list-style-type: none"> Steering committee – Incl. NVI member 	<ul style="list-style-type: none"> Key decision making Project resource management
Integration project management	Integration management team	<ul style="list-style-type: none"> Business integration leader (Philips) Integration manager (target) Program manager (NVI) Project Office 	<ul style="list-style-type: none"> Daily project management Overall decision making Report to Steering Committee
Business process integration	Functional workstreams Country teams	<ul style="list-style-type: none"> Workstream leaders (Philips + target) Functional experts (e.g. NVI, country or sector function) Project and/or Country manager 	<ul style="list-style-type: none"> Implement workstream plans Report to integration management team
Communication	Communications team	(in scope of HR workstream)	<ul style="list-style-type: none"> Implement communication plan and support workstreams
Culture & change management	Culture team	(in scope of HR workstream)	<ul style="list-style-type: none"> Implement culture & change management plan and support workstreams

APPENDIX VIII The roles per phase



APPENDIX ... Example MT after acquisition and role of KI Manager

