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Information system integration in merger and acquisition

A single case study of a Swedish telecom merger

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ABSTRACT (MAX. 200 WORDS):
Information system integration during M&As is one of the most critical processes when two companies are joining together. The majority of all work-related processes are dependent on functioning IS. The integration process exists of several crucial processes that are significant for the two organisations being able to work together. Organisations need to evaluate internal and external factors in order to make the process work. Literature and practice differ in what is regarded as the most important processes. What has been found in this thesis is the distinction between literature and reality, on what is regarded as the important success factors for the IS integration. The identified phases, critical success factors, challenges and IS integration methods found were evaluated in seven interviews with employees from the organizations in this case study in order to identify the most critical processes for a successful IS integration. The investigated processes stretches from the introduction of the M&A to the actual integration of the two organizations IT-stacks. The identified crucial processes found in this thesis are organizational culture, top management support, legal restrictions and legacy systems. Evaluating these and creating a short and a long-term plan on how to integrate and work with them are essential to succeed with the IS integration.

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1 Introduction

1.1 Background

Studies show that organisations have increased growth through merger and acquisition (M&A) compared to an expansion of their business capabilities (Giacomazzi et al., 1997). In 2016, 46 000 M&As were recorded with a total value of more than 3,7 trillion dollars. M&As are an excellent opportunity to expand for large enterprises but are equally as challenging for many companies. Henningsson et al. (2018) mentions that 60-70% of the M&As causes organisational problems rather than creates financial values (Henningsson et al., 2018). One process that is often left out in research of M&A is the information system (IS) integration, which today plays a central part in the realisation of an M&A. According to Sarrazin and West (2011), 45-60% of the expected benefits, such as financial gains and market shares, are directly dependent on IS integration. Accenture (2006) reports that IS integration is the second most important reason for M&A failures, which can cause billions of dollars in losses if not prioritised.

Literature suggests that the IS integration phase of an M&A consists of several different phases. Most of the phases described in the literature consist of the same key processes including due diligence and the IS integration processes (Calipha et al., 2010; Harrell and Higgins 2002; Parenteau and Weston, 2003; Henningsson, 2008; Henningsson, 2018). These processes, together with the success factors and challenges found in the literature, create a blueprint for how IS integration can be done in practice. However, the reality is more complicated, and the realisation of the process is one of the most critical steps of the M&A (Calipha et al., 2010). Haspeslagh and Jemison (1991) have broken down the M&A process into two phases. The pre-phase and the post-phase, where the most critical phase is the pre-phase (Haspeslagh and Jemison, 1991). Henningsson (2008) later redefined these phases, including several subprocesses. Harrell and Higgins (2002); Lam (2005); Soliman et al. (2001) identified several success factors and challenges that are critical to a successful IS integration. Another identified challenge in the literature is organisational culture. During the integration of two companies, organisational culture is considered as an important challenge to manage (Henningsson and Kettinger, 2016). According to Henningsson (2008), only 18 % of the M&As in his research deals with post-phase challenges, while 82 % struggle with pre-phase challenges (Henningsson, 2008). Technology integration during an M&A is a crucial part of the upcoming organisation. All major processes of an organisation are dependent on the information IS provides, e.g. decision-making, resource allocation task performance, risk identification (Delak et al., 2017; Harrell and Higgins, 2002).

The ability to analyse investments and processes of an IS integration is vital for the completion of an M&A. Information system due diligence (ISDD) is an evaluation tool used to identify an efficient way of integrating IS in the pre-phase (Delak et al., 2017). To quote Harrell and Higgins (2002) "*Merging companies must begin planning for the new IS strategy, not when the combination is completed, but during the due diligence phase*" (Harrell and Higgins, 2002). In addition to this quote, the study by Lohrke et al., (2016) found that 83% of the respondents believed that an M&A would be abandoned if information system security risks were found during the ISDD (Lohrke et al., 2016).

The success of an M&A lays in the decision of how to integrate IS between the organisations. The teams working with the integration must evaluate the best way of integration IS- stacks during the integration process (Lohrke et al., 2016). Lohrke et al. (2016) suggest three methods for an IS integration: complete, partial or coexisting. Choosing one method is vital in the early stages of the integration to minimise the complexity of the upcoming processes of the integration (Lohrke et al., 2016). Further Henningsson (2008) points out five IS integration approaches to consider for the integration. These approaches are architectural on the technological level of the integration and consist of: Point-to-point, middleware, enterprise-wide, meta-level and SOA (Markus, 2000; Shaul and Tauber, 2013; Hu et al., 2011; Marks and Bell, 2008; Henningsson, 2008). Even though the technical aspects of the integration are essential, there are several critical organisational areas to consider during the integration processes of an M&A

1.2 Problem area and research question

In order to achieve a successful IS integration during an M&A, organisations need to appeal the needs for the integration, including the challenges and critical success factors described in the investigated literature. Several studies have been made regarding what makes an IS integration successful (Henningsson et al., 2018; Hsu and Chen, 2006; Henningsson, 2008; Harrell and Higgins, 2002). These studies show that the most critical part of the integration is the pre-phase and the construction of an ISDD, evaluating the technical prerequisites for the integration. These studies include the challenges organizations are facing, among these are: communication between the organizations (Harrell and Higgins, 2002), maintaining a high level of IS security (Lohrke et al., 2016), implementing a common organizational culture (Weber, 1996; Avison and Myers, 1995; Henningsson and Kettinger, 2016) and integrating the two IT-stacks (Lohrke et al., 2016; Henningsson, 2008). Harrell and Higgins (2002) point out 17 different challenges that need to be evaluated for a successful integration.

Few authors focus on the implementation of the identified factors and challenges for a successful IS integration. Harrell and Higgins (2002) are just mentioning the challenges merging organisations are facing and do not mention any specific details or how to overcome them in real-life scenarios. Henningsson (2008) investigates the phases of the IS integration process. However, the problem with phases is that the IS integration limits the advancement if not integrated into the employees daily work. The statistics in Henningsson (2008) showed that the pre-phase of the M&A is the phase where 82 % of the participating organisations fail the IS integration process. The literature in this thesis investigates what makes a successful IS integration. It is possible to identify a gap in the literature regarding how the processes of an IS integration should be implemented in an organisation for a successful IS integration. It led to the following research questions:

- *How does practice distinguish from the literature in IS integration during an M&A?*
    - *Which processes of the IS integration are important for a successful system integration, and why?*

1.3 Purpose

The purpose of this case study is to investigate if there is a distinction between IS integration in practice and the literature. The main goal is to identify the phases, integration methods, challenges, and critical success factors and how they distinguish between literature and practice. Based on the phases exhibited by Henningsson (2008), an understanding of the processes, which are essential during the integration, could be found. The main ambition is to analyse these processes, how they are put to use in practice and identify how the processes could be used instead. In addition to this, the identified challenges and critical success factors from Harrell and Higgins (2002) will be evaluated and prioritised in order to get an understanding of which are the most important ones according to the case study. The purpose will be to evaluate the processes in order to distinguish IS integration between literature and the empirical findings. In addition to the distinction, this thesis will identify important factors which can complicate the IS integration process.

1.4 Delimitation

The research is delimited towards finding the challenges and critical processes for a specific merger due to the single case study approach. The single case study approach affects the generalizability of the research area, but the findings are applicable to the organisation itself (Lee and Baskerville, 2003; Recker, 2012). The identified processes and factors are delimited to the Swedish market in one specific line of business. In addition to the investigated literature, the researchers did not interview employees with experience in information system security or top management, which delimits the findings in these two areas.

2 Literature review

2.1 Merger and Acquisition

Merger and acquisition (M&A) are two words defined by external growth (Giacomazzi et al., 1997). According to Giacomazzi et al. (1997), M&As may have four different goals. *Horizontal integration*, a fusion is made to increase the dimensions of the market. *Vertical integration*, the aim to gain other processes of the production chain. *Diversification*, a search for a broader portfolio to reduce market risks. *Other objectives*, that do not depend on industrial policies such as organisational change due to financial gain (Giacomazzi et al., 1997; Calipha et al., 2010).

M&A is split into two separate kinds of activities. A merger is defined by a combination of two objects (Henningsson, 2008) and often involves organisations of equal size merging (Krekel et al., 1969). The acquisition is extracted from the word "Acquire" and has the meaning of a "takeover", and usually happens when a larger company acquires a smaller business (Henningsson, 2008). However, Giacomazzi et al. (1997) define 'Acquisition' as a process where the bidder uses money or stocks, or both together to acquire another company. An acquisition is mainly made to acquire assets from the targeted company and is divided into technical or financial assets (Giacomazzi et al., 1997). The technical asset could be intellectual or material properties, and financial assets are either stocks or shares (Giacomazzi et al., 1997).

Technically, both 'merge' and 'acquisition' can be described as a transfer of ownership (Henningsson, 2008). The key characteristics which differentiate merge and acquisition considering the transfer of ownership are that when a merging entity legally disappears into another or them, both create a new entity together (Henningsson, 2008).

IS integration plays a critical role in the success of an M&A for three main reasons: firstly, business processes are in many cases tied up with information systems, which can limit progression if not integrated correctly. Secondly, management and decision-making are based on complete and accurate information. A successful system integration will provide the right data for this decision-making. Thirdly, the IS functions are substantial and will save costs if integrated correctly (Baker and Niederman, 2014).

2.2 Phases of IS integration

An M&A takes much time, and it will not happen over a day. The amount of phases companies go through during an M&A varies in the literature from depending on the author. The amount of phases ranges from two (2) up to seven (7) (Henningsson, 2008). A two-phase model is presented by Boland (1970) and consists of the "*Premerger*" and the "*Postmerger*" (Calipha et al., 2010; Boland, 1970). Fery et al. (1969) present a four-phase process. The four-phase model is divided into "*The courtship phase*", "*the marriage ceremony*", "*the honeymoon*", and "*after the honeymoon*" (Calipha et al., 2010; Fery et al., 1969). Another four-phase process is presented by Parenteau and Weston (2003) consisting of *Implantation strategy planning*, *candidate screening*, *due diligence*, *and deal execution*, and *"the ultimate integration phase"* (Calipha et al., 2010; Parenteau and Weston, 2003).

Lastly, a seven-phase process was presented by Kazemek and Grauman (1989), which consists of *Assessment, joint planning*, *issue analysis*, *structure selection*, *securing approvals, final planning*, and *implantation*. Calipha et al. (2010) mention a maturity within the field of strategy research and that scholars nowadays prefer to see phases in parts instead of as a whole phenomenon.

Commonly, all progression models follow the same logic as the three-step model by Haspeslagh and Jemison (1991) Henningsson (2008) (see Figure 2.1).
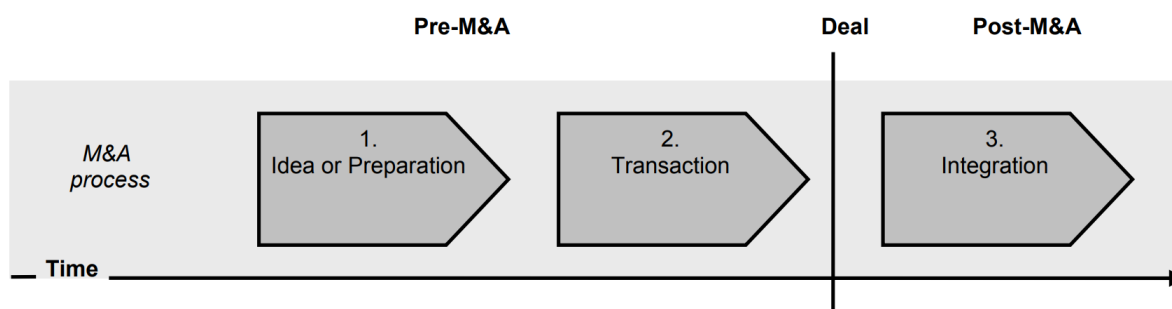
Figure 2.1: M&A process by Haspeslagh and Jamison (1991)

The Haspeslagh and Jemison (1991) model is divided into three steps. The first step is the Idea of Preparation, where the companies explain the need for an M&A. The Idea of Preparation is characterised by the organisation's objectives and desires (Rumyantseva et al., 2002; Haspeslagh and Jemison, 1991). The second step in the model is the Transaction. The transaction phase is where the company finds their target company, then come up with the evaluation, but also the legal financial negotiations (Rumyantseva et al., 2002; Haspeslagh and Jemison, 1991). Lastly, the Integration phase, which is the phase where the companies become one (Rumyantseva et al., 2002; Haspeslagh and Jemison, 1991). Henceforth, this thesis follows the three-phase model presented by Haspeslagh and Jemison (1991), because as mentioned earlier: all progression models follow the same logic as the three-step model by Haspeslagh and Jemison (1991) Henningsson (2008).

Risberg (2003) argues that there are several problems with how the M&A phases are divided and that it is hard to identify where each phase starts and ends. Phase-thinking does not have to correspond with time, and events occurring at the same time can be defined as different phases (Risberg, 2003). Furthermore, Risberg (2003) mentions that different individuals and departments can experience different phases at the same time. Phases could also be experienced differently at an organisation compared with what is described by researchers (Risberg, 2003). Organisations may skip phases and enter into a later phase (Risberg, 2003). Risberg (2003) also identified that the phases could differ from between organisations and employee positions:

> *Lohrum (1992) made an observation that people at different hierarchical levels experience different integration phases. For example, blue-collar workers only experienced two integration phases–when representatives from the acquiring company worked in the company and when they had left.* (Risberg, 2003, p.4)

Risberg (2003) also mentions the difficulties previous researchers have had with identifying the different phases, but also to keep them apart. Even though, is it essential to identify the different processes so it can be divided into notable events and activities (Risberg, 2003).

2.2.1 Pre-phase

The pre-phase is the phase before the integration itself (Haspeslagh and Jemison, 1991). During the pre-phase, the organisations are planning and preparing for the merger (Henningsson, 2008). Calipha et al. (2010) argue that the pre-phase can be divided into two phases - *The courtship* and *The marriage ceremony*. In the first phase - the courtship is described as the time when the two M&A organisations discuss their management philosophies, the different strategies and objectives, and the advantages of their marriage (Calipha et al., 2010). The second phase of the pre-phase described by Calipha et al. (2010) is called *The Marriage Ceremony*. During this phase of the pre-phase, all the legal acquaintances are handled (Calipha et al., 2010). Furthermore, the management of both organisations is brought together to publicly announce the M&A (Calipha et al., 2010).

Henningsson (2008) presented a table, dividing the pre-phase into sub-processes. Continuously, the thesis will be following the processes presented by Breidenbach (2000). However, it will also concern some of the processes presented by Aiello and Watkins (2001) (see Figure 2.2).

Haspeslagh and Jemison (1991)	Idea or Preparation	Transaction			Integration	
Aiello and Watkins (2001)	Screening Potential Deals	Reaching Initial Agreement	Conducting Due Diligence	Setting Final Terms	Integration	
Breindenbach (2000)	Strategy	Planning	Evaluation	Acquisition	Integration	Operation

                    Pre-M&A   Deal   Post-M&A
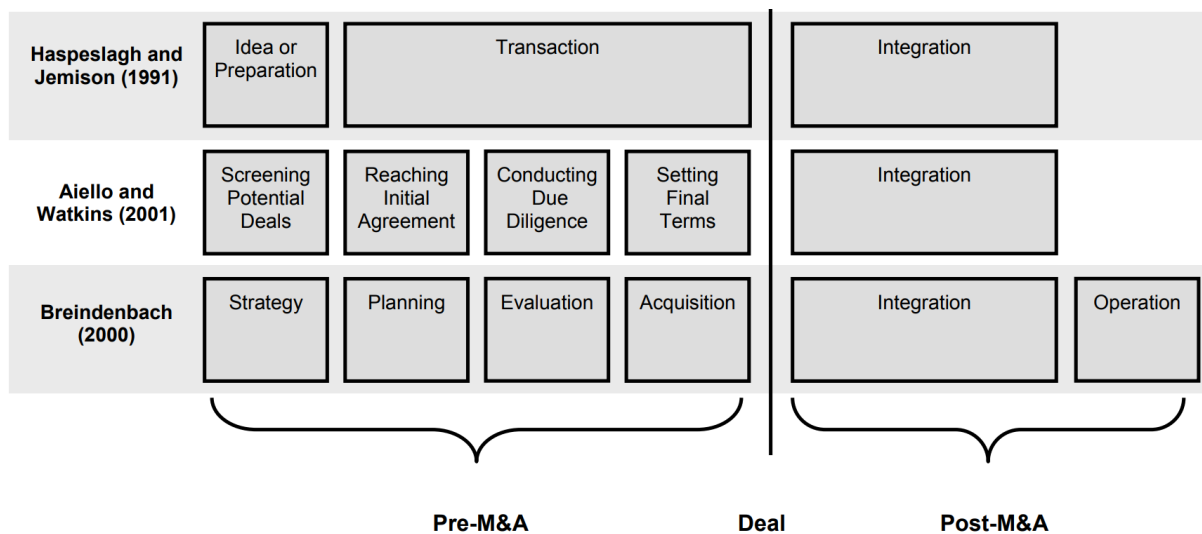
Figure 2.2: Phases of integration (Henningsson, 2008)

Strategy - The strategy phase, or "Screening potential deals" as Aiello and Watkins (2000) calls it, is defined by two simple rules. The first rule is (1) *Look at everything*, which means that the organisations that are interested in an M&A should look at the opportunities and perhaps examine them more in-depth (Aiello and Watkins, 2000). By evaluating plenty of M&A opportunities, the organisation will be able to understand the value of each prospect in comparison with each other (Aiello and Watkins, 2000). The second rule is (2) *Keep a strategic focus*, which means that the organisation needs to keep its focus on the original goal and not stretch on the operating assumptions to do the deal work (Aiello and Watkins, 2000).

Further, it is crucial to not fall for the novice acquire mistake, which is to jump into an exciting opportunity and cast the organisation's' strategy aside (Aiello and Watkins, 2000).

Planning - Hsu and Chen (2006) mention that the planning phase occurs before the integration phase but after the announcement of the merger. The planning phase usually begins with an approval process from the board of each merging organisation, including all necessary legal and governmental agencies (Hsu and Chen, 2006). A merging leadership team is put in place, consisting of members from all M&A organisations (Hsu and Chen, 2006). The leadership team is also responsible for the post-merger operations and integration policies that are made (Hsu and Chen, 2006). During this phase, all involved organisations are informing their clients and customers about the M&A and the effects on current products and services (Hsu and Chen, 2006).

Evaluation - Harrell and Higgins (2002) describe the evaluation phase as the stage where the M&A organisations are identifying the risks and rewards of the system integration. Best practices have to be identified and evaluated, the same for cost implications of the integrated systems (Harrell and Higgins 2002). The evaluation phase also includes the addressing of the business integration personnel as well as the IS infrastructure necessary (Harrell and Higgins, 2002).

Harrell and Higgins (2002) identified the specific goals of the evaluation phase. The goals identified was mainly costs, staffing and operational issues, but also the detailed analysis of the computing infrastructure (Harrell and Higgins, 2002).

Acquisition - The acquisition phase, or as Aiello and Watkins (2000) calls it: *Getting to final terms,* is described as the most sensitive part of the pre-phase. During this part, the management of all the involved organisations is conducting negotiations on both price and strategy (Aiello and Watkins, 2000). Aiello and Watkins (2000) mention that a common mistake for a novice team is to come to the discussion table with a long list of outstanding issues, and try to fix them without a deliberate order. The experienced acquisitioner, on the other hand, does always try to keep the momentum of the talks, and at the same time be aware of the external threats that could jeopardise the deal (Aiello and Watkins, 2000).

Aiello and Watkins (2000) mention three essential topics to consider during this M&A phase. The first topic (1) *Use multiple negotiation channels*, consider the different negotiation channels and the amount necessary for a successful acquire (Aiello and Watkins, 2000). Aiello and Watkins (2000) recommend that divide their negotiation groups into three separate groups: Managers, Lawyers and Investment bankers if they are involved. A negotiation through multiple channels can make it easier to send informal messages, but also facilitate the delivery of hard messages (Aiello and Watkins, 2000). By letting the lawyer or banker deliver hard messages, the managers can maintain a good relationship with their counterpart and do not jeopardise the relationship (Aiello and Watkins, 2000). The second topic (2) *Cultivate alternatives*, focuses on the fact that the organisation initialising the M&A should have more alternatives than just the one they are involved in (Aiello and Watkins, 2000). Cultivate alternatives would give the organisation an advantage in terms of confidence and will be projected across the table when they know they have different choices (Aiello and Watkins, 2000). The third topic (3) *Anticipate the competition* and focuses on the anticipation of the moves by the M&A organisations competitors (Aiello and Watkins, 2000).

2.2.2 IS due diligence

Due diligence (DD) is, according to Delak and Bajec (2013) and Howson (2017), one of the essential processes before an M&A. There are several different DDs to analyse an investment focusing on the investment, liquidity and risk management. Reviewing the IS of an organisation has become necessary, if not vital for a successful IS integration (Delak and Bajec, 2013; Henningsson, 2008; Howson, 2017). DDs are a critical part of the M&A and according to a survey done by Lohrke et al., (2016) 83% of the respondents believed that the M&A would be abandoned if security risks were found during the DD (Lohrke et al., 2016). The study of Delak and Bajec (2013), identified 19 different information system due diligence (ISDD) and produced a framework that can be used to evaluate ISDD. The problem with ISDD today is that global companies do not share or publish the way they work with ISDD (Delak and Bajec, 2013). However, research points out that ISDD is a critical process that needs to be a part of the pre-phase for an M&A and not the post-phase (Delak and Bajec, 2013; Henningsson, 2008; Delak et al., 2017)

In further research done by Delak et al., (2017) ISDD was separated into four parts: *initial, general, vendor and technology*. The *initial* ISDD should be done before the M&A for any organisation to identify the opportunities and weaknesses (Spedding, 2005). The *General* reference of ISDD is the use for the request of stakeholders or the organisation's top management to get the status for an essential part of the IS, or to complete status of the organisations IS (Delak et al., 2017). *Vendor* ISDD is when an organisation chooses to outsource a part, or all IS processes and should be done before choosing this alternative (Delak et al., 2017). The fourth ISDD is *technology,* which always should be done before any technological investments are made (Andriole, 2007). The framework presented in Delak and Bajec (2013) called *framework for information system due diligence* (FISDD) is presented in figure 2.3. The framework consists of four phases for the due diligence process: *preparation*, *realization/on-site review*, *analysis* and *decision*. All four phases involve sub-processes, results and supportive documents (templates, questionnaires, etc.) (Delak and Bajec, 2013). The time frame for each phase can vary, depending on the organisations' size and available documentation (Delak and Bajec, 2013). Delak et al. (2017) reconstructed the FISDD model in this edition and replaced the manual questionnaire with a web-based questionnaire (Delak et al., 2017).
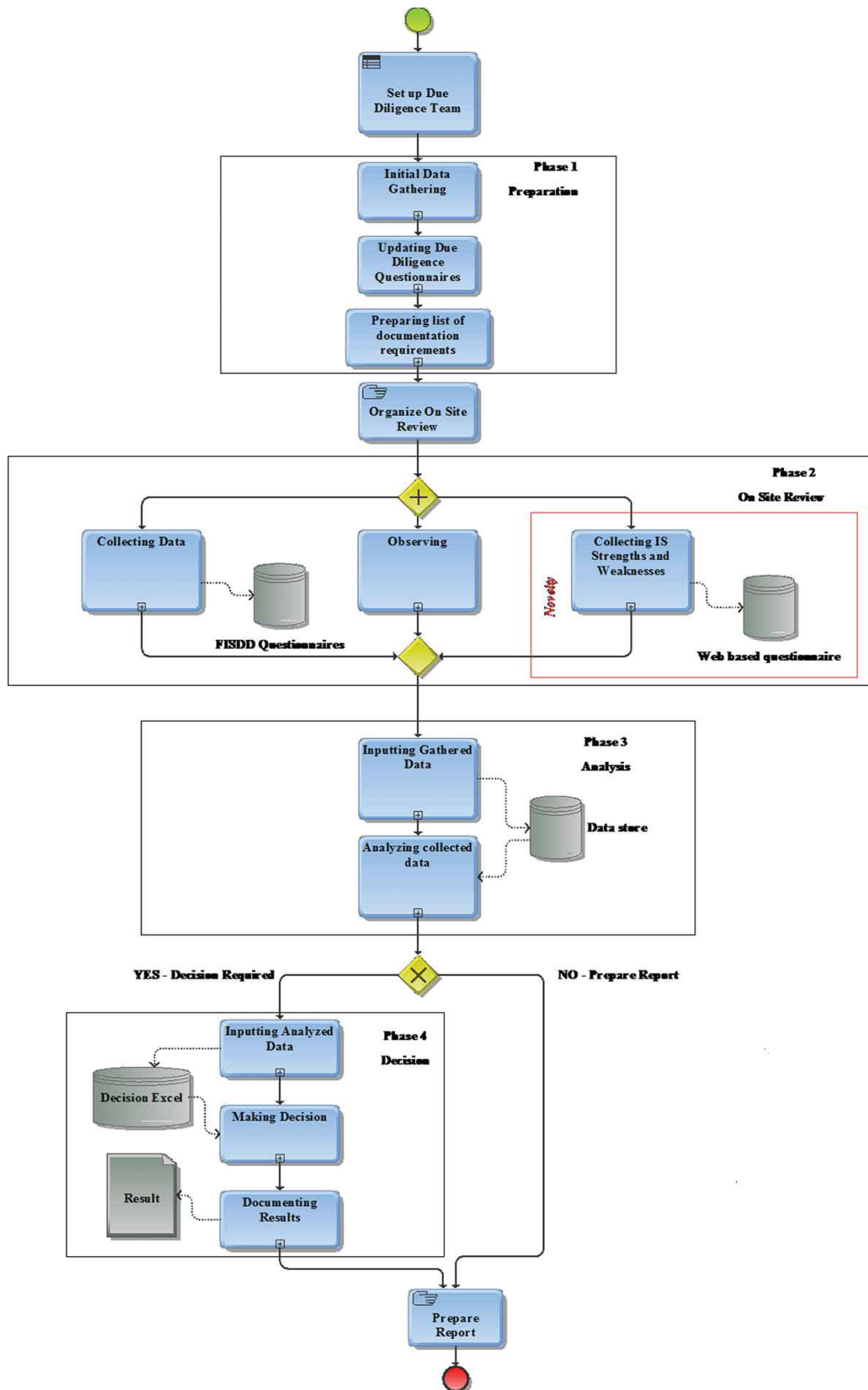
Figure 2.3: Framework for information system due diligence (Delak et al., 2017)

2.3 IS integration methods

According to Giacomazzi et al., (1997), the starting point for an M&A is the integration of all the necessary systems. The integration does not have to imply that a single system, a software environment or architecture are chosen. Instead, the exchange of data and organisational processes according to the needs of the organisation should be prioritised and efficient (Giacomazzi et al., 1997). Many challenges are faced in an M&A during the IS integration and are according to Harrell & Higgins (2002), one of the most critical processes. The survey about M&As presented in Harrell & Higgins (2002) showed that companies experienced problems during the IS integration of the M&As. This caused delays, lost opportunities and decreased revenue (Harrell & Higgins, 2002).

Research about M&A in general, and IS integration in particular, suggest that managers need to decide how the integration operations should be done in an early stage (Wijnhoven et al., 2006). In terms of this, Lohrke et al. (2016) suggest that three different options need to be considered on how to integrate IS in the pre-phase:

- *Complete* - the merged company combines all information systems.
- *Partial* - the merged company combines information systems where potential synergies may occur through improved information quality and cost savings.
- *Coexistence* - the merged company, is running the information systems separately and is only combining data when it is needed (Lohrke et al., 2016)

A complete integration offers the highest potential benefits for the newly formed company, but can also be the most challenging alternative, especially for larger companies with large and complex systems. In contrast to this, the coexistence removes most of the IS integration problems. However, it lowers the potential benefits gained when combining information systems (Lohrke et al., 2016). When considering the integration options, managers need to choose depending on the IT characteristics and IT stacks. Software standardisation and processing capability centralisation are both important factors to consider for a successful integration (Lohrke et al., 2016). Cloud computing has also become a significant part of organisations in the last couple of years, where organizations access software from external vendors rather than managing information systems in-house. Using cloud computing might affect the costs and the final results in the post-phase, both positively and negatively (Lohrke et al., 2016).

2.3.1 IS integration approaches

Henningsson (2008) created a comparison between five different types of IS integration approaches that are used to link different IS together (see Figure 2.4).

Figure 2.4: Different IS integration approaches for IS linkage (Henningsson, 2008)

Henningsson (2008) calls the first approach "point-to-point" (P2P) (Henningsson, 2008). P2P is an interface that directly connects two different applications. The data from application A is automatically transferred to another, application B. If another, application C, needs to be integrated there is a need for two more interfaces to connect with application A and B. If a fourth application needs to communicate with application A, B, and C, three new interfaces needs to be built (Markus, 2000). The problem with this integration is the complexity that becomes vital when more applications need to communicate. P2P integration is useful for its simplicity when connecting systems. The main disadvantage is complexity when integrating systems with more connections (Markus, 2000).

The second approach is the middleware solution. This approach re-architect the system and creates an intermediate layer between the application and the database (Markus, 2000). The approach is called middleware. This application is modified to call the middleware (M) which then calls for the database. The middleware approach is useful since it allows organisations to replace the program and not the database itself. This approach reduces the maintenance burden. However, it does require a high level of technical skill (Markus, 2000). This middleware method is supported by Seddon et al., (2010), who mentions the back end integration as one of the most critical parts of the integration. The middleware approach allows a common database, real-time inter-system messaging and load data from different data warehouses (Seddon et al., 2010).

The third approach is the adoption of an Enterprise resource planning system (ERP) called Enterprise-wide (E) in figure 2.4. ERP applications employ a shared database, which allows the information to be updated simultaneously since the applications are using the same data. Numerous articles have been published on the advantages and disadvantages of ERP systems, Shaul and Tauber (2013) investigated ERP literature and the success factors of ERP implementations between 1998-2010. Their research shows that ERP implementations have many significant advantages but the most common reason for failure is choosing the wrong ERP supplier in an early phase and the implementation strategy is unsustainable among many other reasons (Shaul and Tauber, 2013). However, ERP implementations can be rewarding by streamlining data flows throughout the organisation, which can have a significant impact on the whole organisations' efficiency (Henningsson, 2008).

The fourth approach is meta-level integration (D). Meta-level integration extracts data from source systems into data warehouses and does not integrate systems. Instead, it adds a meta layer from which analyses can be made (Markus, 2000). The advantages of meta-level inte-

gration allow data integration without making changes to the existing system and can also include external data. The disadvantages of meta-level integration are that incompatible and poorly designed data structures in the source become reflected in the data warehouse (Markus, 2000).

Lastly, is the Service Oriented Architecture (SOA). The SOA approach aims towards constructing independent services to create flexible and agile business processes. SOA consists of several so-called "services". Services are software modules that are accessed by name through an interface in a request and reply mode (Marks and Bell, 2008). SOA uses radio links to provide easy access to the system. However, this makes it vulnerable to attacks and failures. The interactions between the SOA functionality and base layer makes the task of integrating dependability and security concepts difficult, due to the scalability issue SOA has (Hu et al., 2011). The benefits of using the SOA approach is the possibility to reuse components, the potential cost reduction of IS and the improved business process agility (Henningsson, 2008).

2.4 IS integration challenges

There are several challenges an organisation needs to consider or mitigate during an IS integration (Harrell and Higgins, 2002). Harrell and Higgins (2002) mention seventeen (17) different challenges to consider during the pre-M&A phase. (1) *Resistance and conflict* - it is essential for the employees to be resistant towards the necessary changes and not engage in conflict over the systems. (2) *Time pressure* - Is it enough time to be able to integrate the systems? (3) *Cost of training and support* - Are the costs clearly calculated? These costs are usually underestimated (Harrell and Higgins, 2002). (4) *Management commitment to the IS integration* - It is of great importance that the management is committed to the system integration and the choice of integration method, as well as to communicate it with the employees of the organisation (Harrell and Higgins, 2002; Liebowitz, 1999). (5) *Impact* - What is the impact of the integrated system, and how will it affect the business operations? (6) *Shortage of IS employees* - Does the organisation have the right employees with the appropriate education and skills to be able to the IS integration? (7) *Shortage of funding available for the integration* - Does the organisations have enough fund to accomplish the IS integration? (8) *Formality* - Does the organisations have the business process rules, standards and procedures as well as the supporting documentation to be able to accomplish the IS integration? (9) *User's knowledge and experience* - Are the users skilled enough and have the right knowledge to be able to utilise the information system fully? (Harrell and Higgins, 2002). (10) *Skills possessed by the project team* - In consideration of the development of the system, does the project team have the required knowledge to develop the integrated information system? (Harrell and Higgins, 2002; Liebowitz, 1999). (11) *Size of the project team* - it is vital to have the right amount of people, not too few so organisations would not be able to finish the project, but not too many so it could jeopardise the team interaction. (12) *Legacy systems* - what is the relationship between the old and the new information system? (13) *Dependency* - Are there any activities or conditions outside of the project that could affect the outcome of the integrated system? (14) *Clarity* - Did the organisations clarify their goals, needs, and desires for the users? Are they coherent and consistent? (15) *Stability* - Are the information system stable or will the users change their wills and desires over time? (16) *Complexity* - What are the complexity of the information system? How involved are the functions? (17) *Level of innovation* - How innovative are the integrated system? Are the technologies new to the organisation? (Harrell and Higgins, 2002).

2.4.1 IS security

Lohrke et al. (2016) focus on the maintenance of IS security. Lohrke et al. (2016) argue that hackers may attempt to steal employees passwords, mainly employees involved in the M&A process by e-mail phishing, to get insider information that could be used to trade stocks. Another important IS security matter Lohrke et al. (2016) mentions is the system access. When more employees get access to the organisations' information system during the due diligence phase, the risks can emerge due to the lowering of the firewalls when integrating the information system (Lohrke et al., 2016). The answer to the IS security issues lays within the top management and their IS security policies (Lohrke et al., 2016). Lohrke et al. (2016) mention that the most important factor is education. The top management needs to educate their personnel about security threats and how to avoid them during and after an M&A (Lohrke et al., 2016).

2.4.2 Organizational culture

Organisational culture has been defined in plenty of different ways. According to Weber (1996), organisational culture can be seen as a set of common assumptions shared between members of a community. Each group, community and organisation, has a unique culture that is based and created from the experience and history of the members (Weber, 1996). Weber (1996) also mentions that culture affects all aspects of the way people or groups interact with each other and is not easy to modify. The culture can be seen when two organisations merge, and two autonomous cultures interact with each other (Weber, 1996; Weber and Yedidia, 2012).

According to Avison and Myers (1995), organisational culture is far more potent than information technologies, at least in general perspective. The authors also mention that organisational culture can have a substantial impact on the development and operations of information systems (Avison and Myers, 1995). Henningsson and Kettinger (2016) argue for the problems that could occur when there is a big difference in the organisational culture between two merging organisations. The clash of cultures, which are usually a result of a new way of working, could lead to a loss of independence (Henningsson and Kettinger, 2016). This could be devastating for the absorbed staff, affecting the moral negatively (Henningsson and Kettinger, 2016). Through an IT standpoint, the culture clash could lead to business disruption during the time the staff resist adoption to the new systems and environment (Henningsson and Kettinger, 2016) and organisational culture can be seen as a threat towards a successful IS integration (Liebowitz, 1999).

2.5 Critical success factors for IS integration

IS plays an integral part in an organisation's M&A and has a critical role in the success of a IS integration process (Harrell and Higgins, 2002). According to Harrell and Higgins (2002), there are general success factors an organisation need to fulfil to be able to have a successful IS integration. Harrell & Higgins (2002) and Soliman et al., (2001) mention important success factors which are: (1) Importance of excellent personnel, meaning that the organisations need to maintain a well organised and educated employees. It is also essential for organisations to have excellent external personnel, consisting of hired consultants. (2) During the evaluation

phase (part of the pre-phase) is it important to get end-users input. (3) Have clear communication with the end-users throughout the entire integration process (Harrell and Higgins, 2002; Soliman et al., 2001). (4) Do not try to modify commercial software, instead redesign or create new business processes which would fit the existing software. (5) The importance of obtaining and sustain top management support (Harrell and Higgins, 2002; Soliman et al., 2001). (6) Obtain or hire personnel with both the business process and technical knowledge (Harrell and Higgins, 2002; Lam, 2005; Soliman et al., 2001).

2.6 Literature review summary

Kvale and Brinkmann (2009) explain the importance of thematising. By thematising the research, it is possible to structure the basics for the interview guide, and questions asked. Table 2.1 consists of themes and subthemes observed in the literature. It shows the major themes of merger and acquisitions, phases of IS integration, challenges, critical success factors, and IS integration. In addition to this, sub-themes were created to structure the content from the investigated literature, which is described for each sub-theme. The key considerations are also listed from the authors of the sub-themes.

Table 2.1: Literature review summary

Theme	Sub-theme	Literature	Key considerations
Merger and Acquisition			
Merger and Acquisitions	Merger and Acquisitions	Giacomazzi et al., (1997) Calipha et al., (2010) Krekel et al., (1969) Henningsson, (2008) Baker and Niederman, (2014)	● Different profitable reasons for entering an M&A ● Transferring ownership ● Business processes are tied up in IS ● Management and decision-making is based on accurate information
Phases, challenges and critical success factors			
Phases of IS integration	Phases of IS integration	Henningsson, (2008) Boland, (1970) Calipha et al, (2010) Fery et al., (1969) Parenteau and Weston, (2003) Kazemek and Grauman, (1989) Haspeslagh and Jemison (1991) Rumyantseva et al., (2002) Risberg, (2003)	● Several ways of identifying phases ● Arguments on how to separate phases for the integration process ● Phases are separated into the integration processes ● Legal negotiations are done quietly ● Hard to identify where different processes start and end ● Departments and individuals experience the phases differently ● Phases differ between organizations and employee positions
	Pre-phase	Haspeslagh and Jemison, (1991) Calipha et al., (2010) Henningsson, (2008)	● Is the planning phase of the M&A ● Evaluates the characteristics of each organization and how to integrate them

		Breidenbach, (2000) Aiello and Watkins (2000) Hsu and Chen (2006) Harrell and Higgins (2002)	• Legal acquaintances are handled • Strategy, planning, evaluation and the acquisition are handled • Analyzing the different organizations to find advantages and disadvantages
	Information system due diligence	Delak and Bajec (2013) Delak et al., 2017 Howson (2017) Henningsson, (2008) Lohrke et al., (2016) Spedding, (2005)	• The most important evaluation for the IS integration and IT infrastructure • Hard to do since organizations do not share their work ISDD methods • Identify opportunities and weaknesses • Find the processes to complete in-house or to outsource • Identify technology investments
IS integration challenges	IS integration challenges	Harrell and Higgins (2002) Liebowitz, (1999)	• 17 challenges to consider during the integration
	IS security	Lohrke, (2016)	• System access • Risk when lowering firewalls • IS security issues are a matter for top management • Educate personnel in IS security
	Organizational culture	Weber (1996) Weber and Yedidia, (2012) Avison and Myers, (1995) Henningsson and Kettinger, (2016) Liebowitz, (1999)	• Affects both organizations • Impacts the development and operations of IS • Results in new ways of working • Can affect the morale • Business disruptions
IS integration critical success factors	Critical success factors	Harrell and Higgins (2002) Soliman et al., (2001) Lam, (2005)	• Excellent personnel • Validate end-user input • Communication • Integrate software the right way according to what your research suggests • Top management support
Information system integration			
IS integration	IS integration methods	Giacomazzi et al., (1997) Harrell & Higgins, (2002) Lohrke et al., (2016)	• Challenging process • Can cause delays, lost opportunities and decreased revenue • Needs to be decided in an early stage • Three ways of integrate: complete, partial and coexisting
	Information system integration approaches	Henningsson (2008) Markus, (2000) Seddon et al., (2010) Shaul and Tauber (2013) Marks and Bell, (2008) Hu et al., (2011)	• Five approaches for the technical integration, each with various benefits.

3 Research method

3.1 Research Strategy

This research will follow the qualitative method approach. The thesis considers the qualitative method to be the most effective method to answer the research questions. According to Recker (2012), the qualitative method focuses on non-numerical data (text) - what people have done, seen, experienced and said. Compared to the quantitative method, which focuses on measurement and numerical data (numbers) (Recker, 2012). The qualitative research method focuses on people and how they act, behave, operate, and how they make decisions (Recker, 2012). The qualitative method is created to explore the context and to explain why certain phenomenons occur (Recker, 2012). The thesis chose to investigate information system integration in a real-life context, something the qualitative method will enable by giving practical examples from the respondent point of view.

Besides conducting qualitative research, this thesis also chose to conduct a single case study. The company in this research is in the middle of an ongoing merger where parts of the integration are complete, while other integrations are still in progress. Bhattacherjee (2012) argues that a single case study is useful when the case itself are unique or extreme (Bhattacherjee, 2012). Easton (2010) argues that only one case is enough. Easton (2010) also mentions that one case study will not provide the researcher with "The right answer", like other philosophical approaches. Instead, it depends on if you can accept the basic assumptions (Easton, 2010). Easton (2010) further explains that other authors argue for case studies lacking generalizability. However, generalising of any kind is not possible unless everything in the world is the same, and in that case, theories would be non-existing (Easton, 2010). In the context of the number of respondents, Lee and Baskerville (2003) mention that a higher amount of interviews would not increase the generalizability of the research.

Even though a single case study can be seen as an arguable methodology, it is still according to Recker (2012) one of the most common qualitative research methods, and it aims towards researching a phenomenon in a real-life context. To be able to increase the reliability of a case study, it is vital to support the findings with various means of data collection: observations, documentation, interviews and secondary data (Recker, 2012). To be able to support with multiple data, this thesis has chosen to collect supportive data and created a priority form in addition to the interviews done. This priority form will give extra input showing what the respondents find most important during an M&A.

3.2 Data collection

A well-structured and exporatory literature review must be done in the first place. The problem area should be well-defined, explaining the key elements of the research area and why it was chosen as a research question. The method is inductive and interpretive research, also called theory-building research, where the researcher tests the theoretical concepts from the observed data in the empirical findings (Bhattacherjee, 2012). Interviews are, according to Recker (2012), the most commonly used method for data collection. According to Myers and Newman (2007), interviews are the best way of understanding a specific problem. However,

there are three types of qualitative interviews: Structured interviews, semi-structured interviews and group interviews (Myers and Newman, 2007). The interviews will be done in a semi-structured way to allow room for improvisation during the interview to find critical factors and processes that are critical or vital for IS integration during an M&A.

To generate rich data from an interview, Schultze and Avital (2011) suggest that the researcher should be active and engaging during the interview. To be able to generate rich data from the interviews, the authors also suggest that the interviews should be grounded in the participant's own experience, acknowledging the participants' description and experience in the matter. Finally, Schultze and Avital (2011) highlight that the researcher should provide a framework for guiding the participants throughout the interview to interpret what they are saying. In addition to the interviews for the case study, this thesis will conduct a priority form for the respondents to prioritise activities found in the literature review. The priority form will allow the research to get a better comprehension over what the respondents prioritise in the IS integration process.

3.2.1 Description of selected organisations

The companies participating in this case study chose not to be mentioned in this thesis, and this chapter will give an anonymised picture of the companies. The M&A chosen for this case study is a vertical merger between two organisations. The merger was done to extend the organisation's product portfolio. The organisations merging will be mentioned as company A and company B. The organisations are operative in the Swedish telecom market, and together, Company A and B had approximately a total revenue of 30 billion Swedish Kronor in 2017, according to the respondents. Together, both organisations had approximately 6600 employees in total before the merger.

3.2.2 Selection of respondents

In the selection of respondents to the interviews, this thesis used a mixture of expert sampling and snowball sampling (Bhattacherjee, 2012). The research is done as a case study, and the researchers had one person within the organisation that connected the researchers with two project leaders of the integration and the CIO from one of the companies. In addition to this, the project leaders and the CIO connected the researchers with key persons necessary for the integration. The thesis ended up seven key employees from the IS integration including the following roles: program manager, solution architects, IT project leaders, technical product managers, IT manager and the head of architecture and planning. The reason for having a spread between different roles is due to the research needing input from all lines of the integration, starting from the first idea to the final integration. Choosing to interview employees with the same role in the organisation would lower the reliability and validity of the research and would limit the final results to one role's experience. R1-R7 all represent the newly formed organisation; all have different backgrounds and various amount of experience relating to system integrations during an M&A. However, all of the respondents were genuinely interested in the research and wanted to participate in free will.

R1 - Respondent 1 is a program manager at company A. The respondent has been involved in the current merger but has also been involved in previous M&As. In the role of a program manager, R1 needs to structure and organize what needs to be implemented and is also responsible for all major processes of the integration. R1 is responsible for creating timelines with deadlines for co-workers to follow and to deliver on time. It is the program manager's task to allocate resources in the right way and to follow up on critical processes. R1 had useful insights when it came to this case since R1 works on a high level within the organisation.

R2 - Respondent 2 has been working at company A for almost four years and is the solution architect for the online part of the company with responsibilities for apps, websites and more. R2 has been involved in previous M&As, at that time as a lead developer for the integration and the self-service development department. In the most recent merger, R2 started as a lead developer but soon became one of the solution architects. In the role of a solution architect, R2 had the responsibility to deliver a solution for customers when the merger is complete.

R3 - Respondent 3 has been working in the organisation for almost nine years and has been involved in several M&As. Today R3 is working as a technical product manager covering the majority of the IT aspects of it and has been working as a solution architect for many years during past M&As. One of R3s main task has been to help with the IT aspect during the last merger for the commercial side of company A. R3 describes the work as bridging between IT development and product development. R3 has excellent insight into the critical processes of an M&A and helped to integrate the two different IT stacks.

R4 - Respondent 4 has been employed at company A for one year and engaged the task as an IT project leader in the early phases of the integration process. R4 has been involved in ventures affecting three to four teams. R4 had responsibilities to ramp up and push towards agile methods. However, conducting agile processes and assumptions has a significant impact on the speed of future integration, this process was initially done with architects from both company A and B on an epic level where R4 was involved.

R5 - Respondent 5 has been involved in the current and previous M&As with the company, both times as an IT-manager and was responsible for the IT processes of B2B but also responsible for strategy and IT-related questions. One of R5's primary responsibility was an internal department but also for internal and external subcontractors of the IT organisation for the consumer and finance department's information systems. R5 became involved in the integration after a few months when an NDA did not bind the employees.

R6 - Respondent 6 has significantly been involved in the integration process as Head of architecture and transformation; the respondent has been a part of various M&As before also with larger enterprises where R6 also was included in the IT board. During this integration, R6 had the overall responsibility to plan the IT landscape. R6 has been working at company A for two years but could not enter the integration process until the purchasing was approved due to the NDA agreements. R6 has many years of experience in the field and gave the thesis valuable information regarding the integration process.

R7 - Respondent 7 was the technical product manager for company A during the integration. R7s main tasks during the integration were to translate the commercial part into technical requirements and technical guidance. R7 has previously been involved in other M&A but on a

smaller scale. During the M&A between company A and B, R7 worked to ensure that company B could be able to sell company A products by ensuring the integration of the IS for this task.

Table 3.1: Summary of respondents

Respondent code	Position	Interview date	Interview type	Duration
R1	Program manager	2019-04-23	Face-to-face	58 minutes
R2	Solution architect	2019-04-23	Face-to-face	43 minutes
R3	Technical product man-ager	2019-04-23	Face-to-face	56 minutes
R4	IT project leader	2019-04-23	Face-to-face	42 minutes
R5	IT manager	2019-04-24	Skype audio call	1h 3 minutes
R6	Head of architecture and planning	2019-04-24	Face-to-face	52 minutes
R7	Technical product man-ager	2019-04-29	Skype audio call	49 minutes

3.2.3 Interview guide

As mentioned previously, the interviews were done in a semi-structured approach to allow room for improvisation in order to start a discussion and to identify critical aspects not found in the literature review (Myers and Newman, 2007). The main ambition was to conduct the interviews on-site at the organisations headquarter in Stockholm. However, not all the participants were able to make it during the two days visit. Therefore, the researchers had to conduct two interviews through Skype audio calls. The main ambition was to have all the interviews between 50 minutes to one hour, which the researchers almost managed to achieve. All the interviews were conducted in a quiet environment to avoid disturbance and having the recordings infected by surrounding noise (Bryman et al., 2005). Before starting the interviews, the researchers tried to meet the respondent on their level to erase any inequities between the parts, by presenting the researchers and the research conducted at the time (Recker, 2012). In addition to the presentation, the researchers encouraged them to give as many practical examples as possible. Furthermore, the researchers ensured the respondents that they would be anonymised in the thesis with the exception of their roles.

The interview questions focused on the respondents' personal experience and considerations after being involved in the merger and how the system integration went according to them. The questions formulated in the questionnaire were created from the key factors identified in

the literature review. Due to the respondents only having one hour to spare for interviews, the researchers chose to have open-ended questions that allow for improvisation with an allocated time frame for every theme in the questionnaire. By doing that, the researchers created a balance between the themes, and when there was time to spare, the researchers could dig deeper into specific themes (Bryman & Bell, 2015).

Kvale (1996) proposes that the questions asked are limited to "what" and "how". these questions allowed the researchers to get a clear picture of the respondents' considerations instead of asking leading questions consisting of "why". This method was used throughout all the interviews in order to do a comparative analysis of the seven respondents (Kvale, 1996). The main goal after identifying the different themes in the literature review was to compare it with the examples and perspectives from the organisational contexts (Schultze & Avital, 2011). The interviews consist of the respondents own comprehension and knowledge after being involved in the processes of different amounts of time. However, as seen in table 3.2, there are follow up questions which were not used if the respondents already had given relevant answers.

3.2.4 Supporting data - Priority form

Supporting data is necessary when conducting a single case study (Bhattacherjee, 2012; Recker, 2012). In addition to the interviews, the researchers created a priority form. This form consists of seven rows and involves essential topics for the organisation to consider during a merger. All the topics are based on the literature and will be rated from 1-7, where seven is the most important and one is the least. The respondents are only allowed to use each number once. The researchers are aware that all the topics are of great importance during an M&A, but would like the respondents to consider each alternative carefully. If the researchers would use a 1-7 scale on each topic, presumably the respondents would put a high number on each topic. With only letting the respondents chose the number once, they are forced to prioritise the most important processes according to them. This priority form will result in a ranking of the most important topics, according to the respondents.

3.2.5 Interview structure

All the interviews followed the guide described previously and started with the researchers asking the respondent for consent to record the interview. The researchers also assured the respondents of the confidentiality of their responses (Bhattacherjee, 2012). The researchers asked the respondents if they wanted to do the interviews in English or Swedish. Two of the respondents chose to interview in Swedish, and the rest chose English. Five of the interviews were done face-to-face; the other two were done through skype audio calls. The main difference between the two interview types was that face-to-face interviews improved the data collection since it allowed the researchers to understand the non-verbal expressions of the respondents (Kvale & Brinkmann, 2009). Myers & Newman (2007) suggests the following: to increase the quality and time spent during interviews; a summary should be sent to the respondents in advance. This included the key themes found in the literature and the research question (Myers & Newman, 2007). This method decreased the time spent on explaining the research to the respondents, which was necessary due to the limited time the researchers had for each interview.

3.2.6 Interview questions and priority form

Table 3.2: Interview questions

Theoretical area	Interview question
Introduction questions	- What is your role in the organisation? - Have you been part of any previous integrations? - What is your role in the integration process? - Can you explain what you do in your role? - How long have you been working in the organisation? - If you did not work from the beginning of the M&A, did you join the organization in the middle of it?
The phases of integration	- Can you divide your integration process into phases, if so, can you describe them for us? - During which phase did you encounter the most problems? - Which processes was the most important in the integration? - Why was it of such importance? - Did you find any complications in these processes?
Critical processes for IS integration	- Which do think are the most critical part of the integration process? - Did you face any problems during that part? - How did you overcome that problem?
IS integration challenges	- Which are the main challenges for an information system integration? - Why and can you exemplify it? (high level and low level)? - Organisational culture?
Information system due diligence	- Before going into the M&A, what kind of pre-research did you do? - Did you create a due diligence in the beginning stages of the integration? - Literature suggests that IS due diligence this is one of the most crucial parts of the pre-phase, do you agree? - If yes/no why? - Was IS due diligence important for this integration process?
IS integration	- How did you integrate the existing IS in the M&A? Did you integrate them together, partially and did you create a new one? - What was the reason for doing the way you did? - Legacy systems? - Legal problematics?
Maintaining IS security	- The literature mentions the Cyber security as a big challenge towards a successful IS integration. How do you work to maintain a high level of security? - If not, why are you not doing it?
General questions	- How do you define a successful information system integration? (time, quality, costs) - Is there anything you want to add that you think that we have missed in this interview? - Do you have any documentation that we can use to support our empirical data (Workflows, process management, decision-management)?

Table 3.3: Priority form

Topic	Priority
Importance of the right personnel in the right processes	
Communication with end-users during the integration process	
Top management involvement	
Managing legacy system	
Maintaining information system security	
Internal communication	
Organisational culture	

3.3 Data analysis method

All the seven interviews found in appendix 1-7 were all transcribed as soon as the researchers had time to transcribe. The researchers did this because of Kvale (1996), suggesting that it is too late to begin analysing after the interviews are done. The majority of the interviews were done in English. Therefore, the researchers chose to use the transcription tool sonix.ai, an online transcription software that automatically generates speech into text. The interviews that were conducted in Swedish were transcribed using audio software to be translated and transcribed into English. The software used for the interviews worked very well to get the big masses transcribed. However, the researchers also had to go through every interview to correct the mistakes and anonymise the interviews. The software generated a document for easy analysis and referencing (Bhattacherjee, 2012). The final transcripts were finally cross-checked by the author, which was not transcribing it.

3.3.1 Coding

To be able to answer the research question of this thesis, the researchers needed to find patterns in the empirical data, in order to identify key processes and phenomenons in the answers given during the interviews. The data text analysis of the data was done using Nvivo as a qualitative tool to analyse the qualitative data. This analysis process was done as a *within-case* data analysis (Bhattacherjee, 2012). The within-case analysis involves overlapping the data collection and analysing it. The concept of this is to find themes in the data analysis. In the within-case analysis, the researchers had to examine all emerging concepts of the interviews

separately and found significant problems related to the initial theory found in the literature review.

The next step was to "make sense" of the problems described using the respondents' personal experience and observations (Bhattacherjee, 2012). In addition to this, the researchers chose to create a grounded theory developed by Glaser and Strauss (1967), which was later refined by Strauss and Corbin (1990). To further illustrate the coding techniques used to categorising and classifying the data text into a specific set of codes, categories and relationships (Strauss and Corbin, 1990).

This method combined with the literature review gave the researchers the main themes for the next step of the analysis phase, the actual coding using: Open coding, axial coding and selective coding (Bhattacherjee, 2012).

- **Open coding:** this process is mainly to identify the key concepts that are hidden within the textual data. This was done after the interviews were conducted, and the concepts later linked to specific sections of the text (coding unit) (Bhattacherjee, 2012). These coding units are the sub-themes found in figure 3.1. These sub-themes are recognisable characteristics for the main themes, both on a high and a low level.
- **Axial coding:** Is the process where the researchers assembled the themes and sub-themes into relationships for the phenomenon of interest (Bhattacherjee, 2012). In terms of this, the researchers could identify the main characteristics of each phenomenon by reading the interviews carefully and adding the primary considerations to the themes.
- **Selective coding:** This phase of the grounded theory is related to Strauss and Corbin (1990), where they describe the categorising of the data sets (Strauss and Corbin, 1990). Recker (2012) explains how the selective coding is identifying central categories or core variables and the relation for every theme. These are all key variables that are going to be used to categorise the findings of the interviews (Recker, 2012; Bhattacherjee, 2012).

Flick (2013) explains how software like NVivo helps the researcher to organise, sort, search and process these vast quantities of data, based on the coding described in the previous paragraph (Flick, 2013). In addition to NVivos functionalities, the researchers were able to create a content analysis to be able to understand the concepts that were discussed during the interviews using tree nodes (which can be seen in figure 3.1). The researchers were able to keep track of the explanation for each separate theme in order to conduct the empirical results systematically and straightforwardly (Leech and Onwuegbuzie, 2011). Flick (2013) mentions that this kind of programs are not made to decipher the text and content behind what the respondents were saying. It forces the researchers to be critical to the explanations and makes the coding vulnerable for misinterpretations (Flick, 2013). The research data was manageable since the researchers transcribed the interviews well and separated the questionnaires in a way that could easily be managed.

Nodes		
Name	Files	References
Theme 1 - Phases of integration	4	8
Deadline oriented	3	4
Pre-phase	3	8
Critical phases	1	1
Post-phase	1	1
Information system security	5	5
Information system due diligence	3	4
Identify weaknesses and strenghs	1	2
Top management involvement	1	1
Outsourcing IS tasks	1	1
Technical investments	1	2
Theme 2 - Critical success factors for IS integration	3	6
Importance of excellent personnel	0	0
End user input	0	0
Communication	2	3
Top management support	0	0
Successful IS integration	7	10
Theme 3 - IS integration challenges	5	9
Competence loss	4	4
Relationships with the systems	2	3
Legacy systems	7	11
Legal restrictions	6	10
Non disclosure agreements	2	2
Organizational culture	6	6
External consultants	3	4
Merging cultures	4	7
Theme 4 - IS integration methods	5	10
Information system integration approaches	1	2

Figure 3.1: Coding summary from NVivo

3.4 Research Quality

3.4.1 Reliability and Validity

Quality of research can be measured by reliability and validity. The literature defines reliability as *"the degree to which the measure of a construct is consistent or dependable"* (Bhattacherjee 2012). With other words, reliability can be described as a scale of measure where the same conduct is done several times, and the result would be consistent as long as the researched phenomenon stay the same (Bhattacherjee 2012). The researchers began each interview with a short presentation of the research. It was done to prepare the respondents for the questions to come. It would also give the respondents an understanding of the research and what the researchers were looking for. By doing so, the researcher's goal was to get more relevant and precise answers, which would result in a higher level of trustworthiness. It was also a way of being fair. A way of giving all the respondents the same background information and insight into the research. Furthermore, the interviews were transcribed by one of the researchers and then cross-checked by the other. The cross-checking was done to maintain a high level of reliability, but also to get rid of possible errors that could occur in the transcript.

Bhattacherjee (2012) discuss the importance of asking the right questions, and that you should only ask the questions the respondents may know the answer of. The researchers were aware of the fact that the respondents were from all levels of the company, ranging from solution architects to the head of the entire IT architecture. The researchers predicted that all of them might not know the answer to all questions. Hence, the full range of roles could negatively affect reliability, but it also resulted in a better overview of the system integration.

Validity is described as *"the extent to which a measure adequately represents the underlying construct that it is supposed to measure"* (Bhattacherjee 2012). To be able to simplify the term, validity is about measuring the right construct, and that the right construction is measured, nothing else (Bhattacherjee 2012). The validity is ensured by the literature review and the conducted interviews. The researchers chose to interview a wide range of employee roles within the integration. This was done to ensure the validity of the research. The researchers chose to interview employees in several departments, also called stream, to ensure that they are presenting a fair and correct picture of the complete integration.

3.4.2 Ethics

Ethics is something the researchers consider essential. What the researchers learned through the years as graduates are the importance of academic integrity. To references and not plagiarise other researchers work or falsifying data is something the researchers put much attention into. To maintain high research quality, the researchers had to get a good overview of the information system integration in M&As in order to conduct the study. The researchers also had to be judgmental towards themselves. The researchers put a lot of time and efforts into re-reading the thesis and the sources to maintain a high level of academic integrity. By continually challenging themselves both critically, intellectually and academically, the researchers believe that the research withholds a good ethical standpoint.

The reason to anonymise the respondent is to protect the respondents from harm (Bhattacherjee, 2012). Walsham (2006) mentions the importance of anonymity, but even though the employees are anonymised, it could be possible for other stakeholders or employees of the company to come up with qualified guesses of who was interviewed even though no names were presented. If the respondent could be identified by name, the research could jeopardise the security of the respondent, in this case, their employment. Even though the researchers do not think this will be the case, the researchers would like to be extra careful with the respondents' safety. Another reason to anonymise the respondents is the truthfulness of the respondent. If the respondent is mentioned with name, the answers could be untruthful and directed in the way the organisations prefer (Bhattacherjee, 2012).

The researchers contacted the respondents themselves after been giving contact information. The researchers believe that it is important that the interviews are voluntary. The researchers asked the respondents before the interview if they would like to participate and if they are okay with the interview being recorded. The researchers did also inform the respondents that they can withdraw their participation from the research at any time and without any consequences (Bhattacherjee, 2012).

Lastly, it is important to respect respondents privacy. The researchers understood that they were their guests and that the researchers were using their time and privacy (Walsham, 2006).

4. Empirical results

4.1 Theme 1: Phases of integration

All respondents had different views on the phases of integration. R1:12 was working with a gateway method, existing of 5 different gates stretching from the introduction of the merger to the completion of the project. Gate 1-3 was the most critical ones since these consisted of the architecture planning and actual integration while gate 4-5 consisted of evaluation and closing. The differences between the agile and the gate methods are that the gate method was for an internal project for the new launch of the company to reach customers from day one. R2:19 describes how R2 became involved during gate 2, where R2 started planning the target architecture for the solutions. In addition to this, when the phases found was explained. R2:13 summarised the phases as the following: the pre-phase is oriented towards an evaluation strategy planning for the integration, and the post-phase is for integrating the strategy and evaluate how it went.

> *"So with that said, we then draw the IT architecture in Gate 1 and plan every-thing and I'm moving to the gate 2 to actually execute this, Gate 3 is just to make sure you have everything, to make sure that the entire organisation and organisa-tions have everything they need."* - R1:12

Most of the respondents (R3:20, R4:06, R4:12, R5:17, R6:16 and R7:36) are mentioning that they are working agile in the different phases. Working agile is according to the respondents an effective way of working between two organisations to create and form the integration pro-cess and migration of IT since it is built upon processes and deadlines for the integration. R5:07 explains how they are not splitting the processes into phases. Instead, they split the work into different steps, mainly one before the merger's approval and one after the ac-ceptance. Before the merger's approval, it was hard to get information and to start working on the integration due to legal jurisdictions. Only after the acceptance, they were allowed to com-municate and work together.

> *"And this also becomes quite a transition period and also on various levels of the management level want to see it, maybe as a gated project. But when you comes down to the operational work and actually conduct an implementation, it kind of transformed into an agile way working so product manager and venture owner and then back to Product Management."* - R4:06

The main crucial key takeaway from R1:60 was that the pre-implementation phase is the most important by far.

4.1.1 Due diligence

Due diligence was something R1:42, R2:60, R4:38, R5:11 and R7:46 found necessary. R1:42 mention due diligence as something you base your entire project plan on. According to R5:11, it is important from a technological perspective. R5:11 continues to mention the importance of well-defined mapping and to find possibilities. R5:11 also mentions due diligence as a process where the organisation can identify if they have the systems need or if they need to find better alternatives, but also that if the systems are too old, the IT-stack can become unstructured.

> *"From a technological perspective, it is important to create a well-defined mapping as possible and finding possibilities. This can be to identify if there are better systems in the other organisation compared to what we have in-house or if they have an unstructured IT-stack with many old systems."* - R5:11

R6:27 did not mention the importance of due diligence. R6:27 mentions that the respondent was aware of the process from a top management perspective. R6:27 also mentions that they a similar evaluation before the transaction and that they had good knowledge of the financials within the organisation. R6:27 was not sure if the due diligence made it to the next phase, at least R6:27 was no part of the entire due diligence process.

R2:60, R3:32, R4:38 was not a part of the due diligence process. The respondents liked the idea of it but did not know if it was done or how it should be done. R5:19 was not involved either, at least from the beginning, but had a certain knowledge of due diligence. R5:19 mention that in regular cases, the teams are looking for business opportunities but that only a handful of people are involved in that process. R5:19 did join the team after a few months when the evaluation was done on a high level, and therefore did not get the entire picture of the process.

> *"I was not a part of the first part of the M&A. However, in regular cases, you always start by looking into the business opportunities and in this process, only a handful of people was involved. And in time the team grew bigger and bigger. I became involved after a few months when the evaluation was done on a high level."* - R5:19

4.2 Theme 2: Critical success factors for IS integration

All the respondents were asked regarding their opinions for a successful information system integration. The answers varied depending on what they saw as the most critical parts of the integration. R1:40 mentions the inventory of the information systems as a critical success factor, meaning that organizations need to have a clear picture of the IT-stacks from both companies. In addition to this R1:56, R3:63, R4:48 and R7:60 also mentions having qualitative systems as a major critical success factor. However, all of these respondents agree that it is seldom the case. R2:55 argues for having relevant requirements is one of the most critical success factors for a successful IS integration.

> *"But at the end, of course, we should aim to have like zero defects in general, but quality I'd say is to have first a fundamental level of the service and then enough not more manual processes then you make a profit from, and that you're able to manage"* - R4:48

R1:46, R5:27 and R6:24 mentions synergies as one of the most critical parts of the integration, to deliver what you have promised to the market in time, but also the technical synergies in order to minimise risks and complexity. In this case, two companies had to synergise two different product portfolios, which complicated the merger and the technical aspects of it.

> *"In general terms, it is not all synergies what you are looking for on the technical side, but to minimise complexity and minimise the risks as much as possible. This is what is important in the pre-phase, to with the information you can use estimate how big the cost might get if we are to live with existing systems and how much do we have to spend to combine them to one system?"* - R5:19

4.2.1 Communication

Communication was according to the majority of the respondents, a critical success factor in terms of being able to synergise the integration process. R3:50, R4:24 and R6:54 talks about the importance of a functioning communication and its importance for decision-making. Besides the internal communication within the newly formed organisation, R3:28 and R6:48 also highlights the facts of communicating with the offshore teams in order to secure tasks. Communication was problematic since company A had a lot of IS outsourced offshore, while company B had a lot of IT in-house. In order to make this work, functioning communication was essential between the developers and project managers from both organisations. R6:54 highlights the importance of communication within the organisational infrastructure to be able to get hold of the information and prerequisites between the employees. R7:36 acknowledges the problem with employees not working on-site; this makes the processes more complicated and more time-consuming.

> *"I'm not sure if that's a process in itself but once again a collaboration of How do you collaborate and also how do you communicate. Communication is tricky because we have two companies that use different languages and different ways of using the same tool"* - R4:24

4.2.2 A successful IS integration

To be able to understand the respondents view on a successful IS integration, the respondents were asked a philosophical question: How do you define a successful information system integration in terms of time, quality and costs?

According to R1:56, it depends on the scope. R1:56 explains that if the leadership team want a solution fast, it will have less quality, and the main focus is speed. R1:56 continues to mention that if the organisation would like to be a competitor on the Swedish market, the organisation needs to have quality but with the hard deadlines in mind. It is also vital to secure the necessary resources to be able to meet the deadline. R1:56 believes the quality is the most important because otherwise, the organisation will build up a significant technical debt, which

could take a long time to fix. Overall R1:56 believe the quality is the key to success but that it comes down to the ambition of the company and their goals.

R2:55 believe that it is important to understand what the organsation are supposed to build. If there are great requirements, R2:55 mentions the importance of time. A successful IS integration, according to R2:55, is the time where organisations can come up with the best solution that can provide value.

According to R3:62, if organisations can keep the main functionalities and characteristics from both companies, time and cost is the key to success. R3:62 mention that quality is important but that time and cost are the most important if organisations use the minimum quality possible.

R4:48 mention quality as the most important to consider the three alternatives. R4:48 gives an example of a telephone. There are a fundamental quality, that a telephone can make calls. If the user get the wrong SMS when entering a new country, it is not the biggest of problems and something that could be fixed later on. R4:48 mentions that they aim to have zero defects, but that sometimes the organisation cannot fix them right away.

> *"And in regards to quality I believe that first, you have like fundamental quality for instance if you have a phone it's expected to be able to call it that's like simple things and but if you generate the wrong SMS when you land in Japan maybe that's something we can live with for a launch and fixed a week after an so on."*-R4:48

R5:27 begins with not answering the questions in terms of time, quality and costs. R5:27 mentions external expectations as a measurement of a successful integration. R5:27 mentions that the business case and reality are not always connected with each other. According to R5:27, the external perspective for a successful integration is to live up to the expectations and the business case. R5:27 also mentions the internal perspective where organisations analyse the co-workers' evaluations. The most important internal factor, according to R5:27 are the co-worker evaluations, and the engagement among employees, the common and new culture and a lowered stress level lowered among employees. R5:27 thinks this is a proper measurement for a successful integration.

According to R6:48, organisations need to achieve the predefined goals with the integration. R6:46 continues to mention the importance of making it one organisation. It is also important to not let the customers down and deliver the promises organisations have promised. R6:46 does not answer the question in terms of time, quality and costs, but does mention the goal as the vital factor of success.

R7:60 believe it is a big question and does not answer in terms of time, quality and costs. R7:60 mention that success is when organisations merge two different realities. On the other hand, R7:60 mentions the possibilities that occur with a new merger. R7:60 think it is a great time to change systems and get rid of the legacy systems. By removing the old systems, an overall quality improvement would be possible.

4.3 Theme 3: IS integration challenges

Challenges are a problem in any situation, but challenges in IS integration can be a complete game changer if not evaluated carefully. This research chose to divide challenges into six sub-themes: competence, legacy systems, IS security, legal restrictions, organisational culture and external consultants. All the respondents could identify challenges for the IS integration process and R1:26 sees merging two companies into one as a challenge. What R1 means is that merging cultures, ways of working, work-flows and business processes all look different in almost every company, and it is challenging to merge all these processes. R1:56 also mentions the fact that the organisations need to evaluate the IT infrastructure during the merger. If not prioritised organisations will end up digging a big "technical hole" which in time organisations will have to dig themselves out of in the future. In terms of this R3:22 describes how in previous M&As the company has built temporary solutions that becomes used and forgotten. These solutions later become a problem for the next merger since they are building a technical debt which has grown over time.

> *"This means that we put in place a solution it becomes temporary and is used for years, because afterwards we have some urgent stuff so you cannot solve it and then you have a lot of technical depth that grows all the time." - R3:22*

Another fact that is brought up by R3:52 is that organisations need to train the new employees in the system they are either building or using. This is also mentioned by R1:48 and R5:15, which highlights this as a challenge. If the employees do not know how to use the system it will cost the organisation even more to train and educate the employees.

> *"Have duplicate systems are expensive and it complicates the business part of the organization since you have to use two systems at the same time. In terms of this, you also need duplicate support flows that can assist employees with both systems and that calls for more internal education. It is expensive." - R5:15*

4.3.1 Competence

Competence can be on both a high and low organisational level. R1:26 mention competence on a top management level when merging two companies. A big problem is if key persons leave or disappear from the leadership team during the merger.

> *"And the challenge there is to try to merge these ways of working during a very temporary phase because it is a merger, right? So what will be in the future something that the new leadership team, the new joint leadership team will have to like figure out once everything is in place."- R1:26*

R3:36, R4:32 highlights the fact that during a merger, key employees choose to leave due to the uncertain employment future an M&A might cause. R4:32 also points out the fact that consultants have high rotation, which affects the ongoing processes which can slow them down.

> *"If you look at company B side and they have people that's been there for a longer time than on our side or in some domains, at least in general. Moreover, it has*

> *pros and cons to it. However, being consultant heavy and having high rotation is*
> *a risk on an operational level." - R4:32*

Competence can be found on different levels, high level and low level. For instance, on a high level, the merging companies might have two IT leadership teams, but when the merger goes through these two teams has to become one as R1:26 mentions. Competence can also be found on the lower organisational levels as R3:36 and R4:32 mentions. The high amount of consultants that are hired will disappear with their expertise as soon as their work is done.

4.3.2 Legacy systems

Six out of seven respondents all argues for legacy systems being a problem, both for the integration itself but also for the whole technical solution. Since two organisations are entering the merger with their own two IT stacks the total amount of systems could in some cases double in size according to R1:26. R1:26 also mentions that this puts the enterprise architects to the test in building a solution. R1:26, R2:70: R3:44, R5:13 and R7:50 all agrees that legacy systems are problematic for the integration process. According to R2:74, the main problem with legacy systems are the fact that they cannot keep up with the fetching speed customers desire. R3:44 mentions that they always have an ambitious plan for getting rid of the legacy systems. However, it is always more complicated than assumed since legacy systems are often poorly documented. Even though legacy systems are a problem according to a majority of the respondents, R4:44 sees the legacy systems as a challenge but not a problem.

> *"We have legacy systems that we need to migrate. We always start this migration*
> *with a very ambitious plan. Okay, we dismiss this system in one year, but after it*
> *takes a lot of years. It's always more complicated than everyone thinks because*
> *these legacy systems are very old" - R3:44*

R5:13 mentions that the company hired the consultant firm, Gartner, to evaluate the merger and according to their investigation their suggestion is to find a way out from all the legacy and focus on new solutions.

> *"The old system makes it hard for us to keep up with the pace and it is time-con-*
> *suming. It is a challenge with the legacy systems but if you look what Gartner*
> *says, our line of work is facing an intensive period where it is all about finding*
> *our way out from all old legacy to focus on new products and business models." -*
> *R5:13*

R6:40 argues for the benefits of the legacy systems. R6:40 mentions the cost savings possible by not replacing the systems and that they are going strong. R6:40 believe they should hold onto the legacy system as long as the legacy systems can handle the future. Otherwise, they have to be changed or replaced.

> *"So some legacy systems could be good, going strong, not worth spending money*
> *on to dismantle. We chose a direction for each system. It was based on the role of*
> *the system in the future. Would it be able to handle the future? If not we had to*
> *change it." - R6:40*

R6:40 continues to discuss if the legacy systems are legacy and mention that the systems company A and B have are 3-8 years old and no system is older than that.

> *"...and both company A and company B do not have really, really old systems. We don't have like the banks which have a whole IT part with computers… let's say in our digital dimension, in company B… everything is new since 3 years ago. In other areas can they be between 5-8 years old. Nothing is older than that."* - R6:40

The problem with legacy systems, according to R7:50 is also mentioned by R1, R2, R3 and R5. R7:50 highlights the fact that instead of just having one specific legacy system for one process, they now have one system from company A and one from company B. In addition to this, they need to construct a new system for the two, which adds another one to the newly formed IT-stack.

4.3.3 Information system security

The information system security is mentioned in the literature as a challenge during an M&A. In terms of this, it as an obvious choice to ask the respondents on their thoughts regarding information system security and how they worked with it. Six respondent was not involved at all (R1, R2, R3, R4, R5, R7) but sometimes considered the aspects of the information system security as important. According to R1:52 and R6:46, the security from before remains. R1:52 continues to mention that the two merging organisations worked in a "kind of similar way" with IT security, and because of this, they did not have to make any specific changes. R2:51 and R4:46 mentions the DevOps/security team and that they have skilled personnel working in the security department.

> *"I mean an API we don't proxy with an API key and so on that's secure. I would say we have DevOps that were involved in this, saying it is secure and then we didn't think a lot more about it."* - R2:51

R5:25 explains the importance of customer security. R5:25 believes the customer, both private, organisational and the municipalities need extra security measures but also mention that the IS security at the moment is safe.

> *"However, both of the companies have customers that we need to protect, that needs extra security measures. But of course, we looked over the security capabilities of our existing systems but did not dive deeper in these questions. Instead, we assumed that we have some customers that need to be protected and a lot of large municipalities and they are happy customers. We also want to protect them since we have won large procurements that we know were hard, it was a recite that we have been working with security and security questions. We were very comfortable with the security thinking already being deep into our organization."* - R1:52

R1:52 and R6:46 mentioned that they had not changed anything in terms of security since the merger. R6:46 also mentions that they did not receive any new significant security requirements to fulfil during the integration, and if organisations are not doing any changes, the security will remain unchanged.

"The things you are not changing will be unchanged. Yes, we had security aspects but the requirements... they are unchanged. We did not perceive any new big security requirements to fulfil." - R6:46

Lastly, R1:51 and R2:53 are mentioning the APIs. R1:51 and R2:53 explains that through the APIs, they are fetching data from different systems. R1:51 speaks about the importance that both organisations and the APIs are following the same protocols when linked together. R2:53 mentions that the APIs are secured since they are accessing them through the internet by HTTPS.

"We have a security department. We didn't involve them, like this APIs, they were set up to be public. So you just went on the Internet by HTTPS that is secure. And when we say open I mean everyone could use this APIs if they have the key. So we don't we didn't really need more security than that since they're not a lot of systems talking to each other directly. They always go online to fetch the data with an API key." - R2:53

4.3.4 Legal restrictions

When an M&A occurs, there are legal legislations to follow, and the legal restrictions could sometime hinder the organisations from carrying out the processes of IS integration, at least before the organisations are legally one. The respondents were asked about their thoughts on the legal legislation, how they worked with it, and how it affected their way of working during the integration. R1:28, R2:23, R5:23, R6:08 and R7:40 all mention the communication problems that these legislations bring with them. The two merging organisations were not allowed to speak to each other due to the legal restrictions. R1:28 explains the problem with developing and putting teams together in terms of the legal restrictions.

"Well, you're not allowed to work together, right? We can't put developers in the same room, for example, these are our IT guys, and these are their IT guys, hey! talk to each other... You can draw the boxes and say hey; this is our domain for this. This is your domain for that. Okay!, it could be a very large or high level where you can have that discussion, but you can't sit there and put team A and B together in the same room prior to the fusion. There are some legal requirements that need to pass first, in order to for us to have that conversation properly and put them together." - R1:28

R1:32 continues to compare the problem with a game of poker.

"...if you're playing poker, like if you are one company you would preferably play together and you say hey, okay, so you have those cards. Okay, let's win together, but prior to this you would sit with your staff because you're not allowed to show all the cards." - R1:32

R2:23 speaks briefly about the communication problems and mentions that they had to go through third-party consultants to be able to communicate with the other organisation. This was done through a "legally box", and everything had to be peer-reviewed by the third party consultants and then passed to the other organisation.

> *"...it was obviously a lot of problems legally wise because the process itself was that we discussed things and put some notes in it. And then when we were supposed to send it over to company B, we had to put it in a legally box too McKinsey or whatever... and they were going to review it before they could see it. So to not be able to speak freely about what we wanted to do and how we could solve things was obviously a problem."* - R2:23

Compared to the other interviews, R4:42 work was not affected negatively by the legislation. R4:42 explains that they would probably have done the integration differently if they would have done it today, but with the premises they had, there was no other way of doing it.

> *"I wouldn't say that it did. It did in the sense that if we had created it today maybe we would not have done it in the same way. But how? Based upon the premise or the situation that we have or that we were in we have no other way of doing it."* - R4:42

For R5:23, the legislation was a problem in terms of communication and collaboration but not a problem through a technological perspective. R5:23 argues that there are possibilities to create useful mappings, and to identify the advantages and disadvantages.

> *"From a technical perspective, when you look at the different systems you have the system stack. It is possible to share a bit of information without showing too many secrets. From a technological perspective, it has not been a very big problem. The hard thing is that you cannot talk about the collaboration of the systems and the choices of the systems. You can create a pretty useful mapping over what there are on both sides. What are the opportunities and disadvantages but it is hard to look into road maps. You need to be careful with that. However, you can make some assumptions."* - R5:23

R3:56 and R6:36 mentions the GDPR legislations to consider during the M&A. R3:56 explains that personal information goes between two IT stacks and that there are challenges with handling personal information. They are not allowed to log the information in the middle and therefore needs to put extra attention into the handling of personal information.

> *"I don't know if it's in the security area, but for us, we needed to think about the GDPR, because in this flow going back and forward between two IT stack there is personal information that sometimes needs to be moved from one side to the other side. So, we need to understand how to manage it because we can not log somewhere we cannot keep it in the middle."* - R3:56

R5:09 and R6:14,16,31 both mention the problems with the NDA's (Non-disclosure agreement) they had to sign. The NDA's hindered them from accessing and sharing information, both within and outside of the organisation. R6:16 explains the uncertainties of being a manager, but at the same time not being able to know what some of the team members are doing.

> *"...and one in my team got that mission. But she had to write an NDA, so I as a manager, could not know what she did. I just knew that she was working with it."* - R6:16

4.3.5 Organizational culture

Organisational culture is something that all the respondents identify as a problem. R1, R2, R3, R4, R5, R6, and R7, all mention the differences the two organisations had in terms of culture. R1:26 begins by pointing out that company A and company B had two entirely different ways of doing business, and that it was a challenge for the teams to cooperate. R2:23 continues to explain that they had to swap to a more agile work method. R2:23 also mentions that this resulted in new developers having no idea about what they were supposed to do. In R2:35, the respondent mentions the differences in working methods, best practices and tools. R2:35, R4:14 and R6:18 believed it was hard to work together with the other organisation. Even though it was hard, R2:35 said it became better over time.

> *"I would say again the pre-study because for the reason that we tried to integrate two completely different companies, and we have different work methods and different best practices. We have different tooling. We have a different mindset. So just to come up with some kind of way of working together is hard. And like along the way with this pre-study we came up with a way of working and we became closer, almost friends and then it's getting easier." - R2:35*

R2:31 also identified a problem in the differences when it comes to time management and focuses. R2:31 describes that company B had problems with holding their deadline. R2:31 believe it was a problem because company A could not include company B in the first release.

> *"And one other problematic thing was that company B couldn't hold their deadline. So we had to deliver for when we were supposed to deliver. But they were a bit slower on their end. So we had to do fixes to not include company B in the first release and so on." - R2:31*

R3:36 got another insight, which is the different philosophies within each organisation. R3:36 argues for the risks of losing parts of the organisation when trying to merge different philosophies. R5:17 also found that it was difficult because the organisations had different thoughts and working methods. R5:17 even said it was the start of a one-year crisis. R1:60 spoke about the culture in terms of IT systems, and that both organisations have done an integration previously. Therefore, both organisation had their view on what is working and what is best.

According to R5:17, they put much effort into change management and culture during the first weeks and month for the integration. Unfortunately, the organisation thought they have done enough and stopped working with these questions. Looking back on the first months of integration, R5:17 believes they should have continued to work with it and not stop after a few months. Lastly, R7:36 explains what the merge of cultures have ended up in, and that some of the company B employees are in shock because of the number of changes in their way of work.

4.3.6 External consultants

According to R6:48, the two organisations have an entirely different way of working in terms of IT. Company B is doing its developing in-house, and company A are having a mix between internal and external developers. R6:48 continues to describe the differences in prioritizations

and philosophies between the different organisations. Company B would buy something externally if they thought it was necessary, but if it were of less importance, they would develop it in-house. Company A, on the other hand, would develop it in-house if it had strategic value. Otherwise, it would be bought.

> *"...you handle IT in different ways. More internal developing in company B, and a mix of internal and external in company A. It was even so… if something was really important company B would buy it, but if it was half importance did they think it was cheaper to develop it internally. While company A had the philosophy: what is strategical can be internally developed. Otherwise, it can be bought. If it is a commodity. So here was it a different."* - R6:48

R2, R6 and R7 mentioned external consultants. R2:60 thought it was a problem in terms of the legacy systems. R2:60 mentions that it is hard for consultants to get an understanding of the systems and all the legacy in the six months they had to finish the integration. R2:60 also mentions that consultants would not have the time to be able to finish it since they have to learn and understand the systems the organisation is working with.

R7:36 mentions the differences in speed and time management. According to R7:36, is it possible for company B to do things much faster compared to company A because Company B is developing in-house. R7:36 mentions that company B creates teams right away and can deliver the solutions in a sprint. Company A, on the other hand, got heavy processes where it is hard to communicate, especially when tasks are outsourced and people are not working on site.

> *"So this you know this is a very big difference because... in company B you can do things very fast because you take a team that shall do an implementation or you organize the activities and they can deliver it in a sprint, it's sometimes a couple of weeks. In company A we have a very heavy process even though we call it agile to implement a new thing. So it's harder to communicate with people who are not on site."* - R7:36

Lastly, R6:58 describes the external consultants from a top management perspective. R6:58 explains that they hired Gartner Consulting to validate everything they did. Gartner did not give advice, but they had workshops and gave second opinions. Gartner did also provide them with best practices from other businesses so they could know how other businesses have worked in the same situations before. R6:60 continues to describe how the process looks like at the beginning of an M&A. R6:60 mentions that from the respondents own experience, the CEO gets the state of the nation for each part, including the IT. Then they are in contact with external consultants, which says they can do the integration better than the internal IT department, and that the internal department will not be able to handle the integration. R6:60 continues to explain that sometimes, the CEO does not trust the internal IT division and therefore hires the expensive external partner.

> *"R6:60 It happens that the CEO says: I don't trust my IT, I take this external partner instead, pays them a lot of money and letting them taking care of the integration."* - R6:60

4.4 Theme 4: IS integration methods

This theme investigates the more technical aspect of the integration and how company A and B chose to integrate their systems. In general, the systems were connected completely, partially or coexisting, either through an API fetching data between the systems or through a preliminary interface for the users. R2:28 mentions that they had already planned out the architecture for the systems needed to be integrated. R3:54 also mentions the interface used to fetch data between the two companies IT-stacks. However, according to R3:54, some new systems were built specifically for the new requirements. Since the companies are still operating somehow independently, their old billing and CRM systems are still operational and there is no short term plan to integrate them.

> *"Basically right now we have a two IT stack completely separate with some new systems that were built for the specific new requirements. So it has to be built in any case because the interface is talking between the two IT stacks but no real major systems"* - R3:54

R4:40 was not involved in the integration process itself but mentions that they have a new system or service that brings in orders from company B. In time, it might be removed or replaced, but right now, everything goes through this single point. Regarding the existing system R6:24 suggests that the systems either should be killed or reinvested in. A decision has to be made regarding this. Otherwise, the IT-stack and the technical debt will become too great. R7:18 agrees with R2 and R3, and explains how they started with implementing an "ugly" solution for the integration of the two companies to be able to sell each other's products by connecting the new solution to the existing systems. This quick-fix later had to be redone since the solution was not optimal, R7:26 also mentions this as a big problem, but they are making adjustments.

> *"So we are making small adjustments here and there to reduce the number of failing orders and to make the life of people a little bit easier. But we will need to review the architecture or the full architecture and we will need to build new systems as I said"* - R7:26

Mainly the integration has been done coexisting as a fast and cheap solution. This is a short term solution which in time will be built into a new system. However, the most important process of this phase is to get the IT-stacks to work together and to build a common solution is a long term goal. The central systems that will be fixed short term are the new common systems such as the CRM and billing systems.

4.4.1 Information system integration approaches

R2 was the respondent who was most technically involved in the integration and was the solution architect behind the API solution. The API solution was mainly for fetching data between the different systems during the integration. R2:45 explains how they came up with a solution with two APIs. This made every call that company B did to go through company A:s API. It allowed company A to have full control over what company B could access. Company B also put up a similar solution on their end, and everything had to go through this API. This solution agrees with R4:44, who suggests that organisations should keep the solutions as simple as possible.

"We came up with a solution to have basically two walls of like two APIs so every call that company B were supposed to do would go towards our service or our API. So we had full control of what they could access or not access and they put output up similar API on their end. So all integrations and even it was supposed to go down to buy to be as core." - R2:45

According to R5:23 and R7:40 this API solution was important for both organisation due to the facts described in theme 3, legal jurisdictions, because as mentioned both companies could control the information flow and what data the other company could access.

"You need to get your hands on the key employees. This is often on a very high level. Therefore you don't have access to any detailed information. But more on a general level. This is one of the challenges if you're looking for what kind of API you need, how many transactions are there that is flowing between the different systems. That information is hard to get during this phase" - R5:23

4.5 Supporting data: Priority form

A priority form was conducted to be able to gather supporting data. The priority form consists of seven topics from the literature to consider during an M&A. The respondents had to rate each topic from 1-7, where 7 is the most important and 1 is the least. Each number was only allowed to be used once.

Importance of the right personnel in the right processes - This topic got a mean score of 4,71 and was the third (3) most important topic. All of the respondents gave a value between 4-7 except respondent R5, who did not agree and thought it was the least important of the seven topics.

Communication with end-users during the integration process - This topic got a mean score of 2,86 and the sixth (6) most important topic. Two of the respondents, R2 and R7, though it was the least important topic. R1, R3 and R5 gave threes and fours, while R4 thought it was one of the most important topics to consider giving the topic an 6.

Top management involvement - This topic got a mean score of 5,43 and was the most important topic of them all (1). R1, R3, R5, R6 and R7 all gave high number ranging from 6-7. R2 thought it was one of the least important topics, giving it a 2 out of 7. R4 thought it was more important than R2, but not as important as the rest of the respondents, giving it a value of 4.

Managing legacy system - This topic got a mean score of 2,86 and the least (7) important topic. All of the respondents gave the topic a low value ranging from 1-3 except R2, which thought it was the third most important topic, giving it a 5 out of seven.

Maintaining information system security - This topic got a mean score of 3,43 and the fifth (5) most important topic. The respondents gave values between 2-4 while R2 thought it was one of the most important topics giving a 6 out of 7.

Internal communication - This topic got a mean score of 4,43 and the fifth (4) most important topic and was given a wide spread of values from the respondents. Respondent R1 and R5 thought it was the most important topic of them all, giving the topic value of 7. R3 and R7 thought it was not as important as R1 and R5, giving the topic value of 5. R2 and R6 gave the topic an even lower number than the previous respondents giving the topic the value of 3. R4 thought internal communication was the least important topic of them all, giving the topic the value of 1.

Organisational culture - This topic got a mean score of 4,86 and the second (2) most important topic according to the respondents. R1, R4, R5, R6 and R7 all gave high values ranging between 5-6. R2 thought this was the most important topic of them all giving it a value of 7, while R4 thought it was the least important giving it a 1 out of 7.

Table 4.1: Result of the priority form

Topic	Respondent priority							Score	Mean
	R1	R2	R3	R4	R5	R6	R7		
Importance of the right personnel in the right processes	4	4	7	7	1	6	4	33	4,71
Communication with end-users during the integration process	3	1	3	6	4	2	1	20	2,86
Top management involvement	6	2	6	4	6	7	7	38	5,43
Managing legacy system	1	5	2	3	2	1	2	16	2,29
Maintaining information system security	2	6	4	2	3	4	3	24	3,43
Internal communication	7	3	5	1	7	3	5	31	4,43
Organisational culture	5	7	1	5	5	5	6	34	4,86

5. Discussion

5.1 Theme 1: Phases of integration

This thesis shows that there are different ways of structuring the phases of integration. The phases described by Haspeslagh and Jemison (1991), later redefined by Henningsson (2008) concludes the main principles of an information system integration. The investigated literature describes the phasing process very differently. Risberg (2003) identified that it is still essential to divide the phases into notable events and activities. The choice of investigating Henningsson (2008) allows for making own assumptions of what the different phases involved. The model presented by Henningsson (2008) consists of four tasks, necessary for the pre-phase of the integration. The tasks are strategy, planning, evaluation and acquisition. On a top management level, the pre-phase can be seen from these four perspectives. In addition to the pre-phase tasks from Henningsson (2008) R3:20, R4:06, R4:12, R5:17, R6:16 and R7:36 all mention that they were not involved on a high level. Instead, the majority of the respondent was working with agile sub-processes emerging from these four tasks. Similarities between the Henningsson (2008) model and the empirical answers can be identified. R1:12 describes the work process for the day one launch of the new organisation as five different gates. These gates were very time reliant due to the strict deadline of the launch. R2 was one of the solution architects for this integration. R2:13 summarises the phases of IS integration where the pre-phase is oriented towards evaluation, strategy and planning, and the post-phase is where the organisation integrate the strategy and evaluate how the integration process went. This adds an exciting aspect to the study since the respondents perceive the integration processes differently and the R2:12 answer is similar to Henningsson (2008).

Strategy, planning, evaluation and acquisition describes an M&A from an organisational perspective and not as much from an IS perspective (Aiello and Watkins, 2000; Hsu and Chen, 2006; Harrell and Higgins 2002). However, from an IS perspective, the same evaluation can be done through an ISDD focusing on the IS integration instead of the two organisations integrating. According to Delak and Bajec (2013) and Howson (2017), the ISDD process is the most critical process in the pre-phase. During the ISDD, organisations can identify the strengths and weaknesses of the integration process. This thesis found that the different evaluation principles consist of the same basic principles, while ISDD focuses on the IS perspective. The ISDD consists of four phases as well: preparation, on-site review, analysis and decision. The main goal is to create an analysis and examine the existing IS and IT infrastructure for company A and B. None of the respondents were involved in the ISDD phase but R5:11 mentions that it is important to get a technical overview of the two IT-stacks, evaluate the IT stacks and to make decisions regarding the IS and IT infrastructure. ISDD allows the top management to examine potential challenges and success factors for a successful IS integration.

5.2 Theme 2: Critical success factors for IS integration

As stated in the purpose of this thesis, one of the investigated topics is the critical success factors for an IS integration. Harrell and Higgins, (2002), Soliman et al., (2001) and Lam, (2005) all identified six critical IS success factors during an M&A. According to the authors, these success factors are essential to consider for a successful IS integration. However, these factors are not aligned with the answers of the respondents. R1:40 believes it is essential to create an inventory of the existing IS for both companies A and B resulting in a clear view of the existing IT-stacks (R1:40). In addition to this, quality is regarded as the most critical success factor (R1:56, R3:62, R4:48 and R7:60). The problem with a qualitative system is the expenses, and that quality is not prioritised over time and cost. In addition to these requirements, a key factor for the solution architect is to create a working IS solution with all the requirements from the end users (R2:55). From a high-level perspective, the most essential factor is synergies. Both the promise of delivering to the market in time as well as the technical synergies in order to minimise risks and complexity. Both Harrell and Higgins, (2002) and Lam, (2005) compared to R1, R2, R3, R4, R5, and R6 have different views on the critical success factors. Some of them are aligned, but the synergies is an aspect that is not mentioned in the investigated literature as a success factor. Instead, it is an integration method described by Lohrke et al. (2016). In this case, a vertical M&A was done with two companies merging to gain other processes in order to compete with the market in this line of business. It is possible that the identified critical success factors in the literature review are not aimed towards the same kind of M&A.

5.2.1 Communication

Harrell and Higgins, (2002) and Soliman et al., (2001) both highlights the importance of communication for successful IS integrations. Communication is also mentioned in the interviews and highlighted in the priority form as very important. The communication internally and externally with offshore teams makes up for a very critical process of the integration. In this case, company A outsourced a lot of IS development offshore while company B was developing most IS in-house. To be able to follow the requirements and succeeding with the IS processes, communication became vital in this case. According to R3:50; R4:24; R6:54 is the communication important for the decision-making. Harrell and Higgins (2002) mention top management support as an essential factor for the success of an IS integration. Top management support is also found in the priority form as the highest priority with a mean score of 5,43 out of 7. It is arguable that top management support is crucial because top management is responsible for assigning tasks in the organisation. If there is not a functioning communication or top management support, it will create a domino effect that affects all the different levels of the integration with information getting lost on its way down in the hierarchy. It is possible to see a correlation between the literature and the answers of the respondents in terms of the importance of communication during an IS integration. Harrell and Higgins, (2002) and Soliman et al., (2001) found that communication with the end-user is essential while the respondents found general communication as an essential tool to succeed with designated tasks. The communication during an M&A should be included throughout the processes in order to reach the common goal for the merging companies.

5.2.2 A successful IS integration

The philosophical question of what defines a successful IS integration is an abstract consideration, since it is not measurable. It is only one's definition of success that defines a successful IS integration. The literature mainly mentions challenges and critical success factors to consider, but the investigated literature in this thesis does not elaborate on a definition. The respondents described a successful IS integration in the following way:

- R1:56 - Argues for quality is important depending on the ambition of the organisation and its goals.
- R2:55 - Time is most important as long as it provides value to the organization.
- R3:62 - Time and costs are the most important if you are using the minimum quality possible.
- R4:48 - Thinks that quality is the most important as long as you keep the deadlines.
- R5:27 - mentions that a successful integration is when the internal and external expectations are met.
- R6:48 - Mentions that it is important to strive for the organisational goal.
- R7:60 - Explains that quality is to strive for in a successful integration by removing redundant IT in the process.

A successful IS integration during an M&A is hard to define. There are different comprehensions regarding what a successful IS integration is, and the interviews indicate that the employees have different views on what defines it. In addition to the investigated literature, this case cannot define a successful IS integration. However, when employees have different perceptions of what defines it, it becomes hard to see what the primary goal of the integration is. Is it time, quality, cost or something completely different?

5.3 Theme 3: IS integration Challenges

Harrell and Higgins (2002) found that 17 crucial IS integration challenges should be considered during the integration of two IT stacks. Among the 17 challenges mentioned, this research found five to be of most importance: commitment to the IS integration, shortage of IS employees, legacy systems, dependency and size of project teams. In addition to the previous challenges, Lohrke et al. (2016) mention IS integration security. The investigated literature and the empirical findings differ when it comes to challenges with the highest priority. The empirical data suggests that organisational culture, legal restrictions and legacy systems are the main challenges for a successful IS integration during an M&A.

5.3.1 Competence

Liebowitz (1999) and Harrell and Higgins (2002) both mentioned competence and competence loss as a challenge during the M&A process. The authors found that it is important to have the right employees, the right education, in the right places within the organisation. The problem with competence is that it is an abstract word. The term competence means nothing if it is not used or put into practice. When merging two companies competence is a valuable resource and R1:26, R3:36 and R4:32 mentions that key persons left the organisation due to the

uncertain future of the organisation, and that they were cutting down on personnel. This becomes a problem on both a high and low level within the organisation since duplicate teams become one in the newly formed organisation.

One factor that needs to be evaluated in addition to the respondents' answers is the vendor part of the ISDD described by Delak et al., (2017). The organisation needs to evaluate which processes need to be outsourced to external consultants and which ones to keep in-house. In this case, the merging companies have different ways of developing IT solutions. Company A outsources much IS to offshore teams while company B develops most of the IS in-house. The analysis of this research regarding competence suggests that the distinction between using the competence in-house and hiring external consultants is hard to find. External consultants are important for some major processes of the integration process due to their experience and knowledge. However, they should be included in the beginning stages of the merger. This follows what R6:58 says regarding hiring external consultants. The problematics with having too many external consultants is the process of learning and to understand the IT-stacks of the organisations. This learning curve is far longer compared to using in-house competence. Top management also needs to have trust in their employees and give them the responsibility to conduct the integration themselves. If there is no trust from top management, the problem becomes, and the cost of the complete integration will rise according to R6:60.

5.3.2 Legacy systems

Henningsson (2008) mention legacy systems as a part of the integration. Harrell and Higgins (2002) also mention the legacy systems. Both Henningsson (2008) and Harrell and Higgins (2002) are just touching the surface of legacy systems and do not elaborate on the topic any further. The priority form also shows that legacy systems are of low importance with a score of 2,29 out of 7. However, this might be a short-term solution, and the legacy will not have much impact during the integration. R1, R2, R3, R4, R5 and R7 mention short-term solutions such as building API's to connect IT stacks from both organisations and harvest the necessary information. This is just a simple solution to a bigger problem. According to this research, the problem with legacy systems is the long-term perspective. If the legacy systems is not handled carefully and is not dismantled in time, this could create a technical hole, which can create an IT-stack that is hard to manage for upcoming M&As. In addition to this assumption, R3:22 also describes that temporary solutions have been built during previous M&A. These solutions have later been forgotten, which creates a technical debt that grows over time. To counter this problem, evaluation of the IT stacks can be done during the ISDD process to develop a strategy in order to reduce the technical debt and lower the amount of legacy systems.

5.3.3 Legal restrictions

Legal restrictions are challenges no organisations can avoid during an M&A. Hsu and Chen (2006) mention the term legal restrictions but not the challenges it brings for the integration between the merging organisations. Instead, the investigated literature only mentions legal restrictions as a part of the process of an M&A. The respondents in this study all mention the problematics it brought to the table for the integration of two IT stacks. R2:23 explains how the two IT departments were not allowed to communicate and had to communicate through a legally box until the merger was legally approved. What can be seen as a problem is the missing methods to help with the process on how to work with the integration. Delak et al. (2017)

mention that the consultant firms do not share their knowledge of how they integrate IS. The lack of shared knowledge makes it hard for organisations to find an effective way to conduct the integration themselves. Instead, the integration can be based on the organisations own assumptions of how it should be done. External consultants, on the other hand, could have best practices and knowledge which the organisations lack.

At the time of which this integration took off the GDPR legislation was introduced. GDPR caused significant problems with handling personal information due to the organisations having separate IT-stacks. Because of GDPR, no personal information could be logged or stored in the middleware solution. Therefore, company A and B had to use the middleware solution to access each other's data. This caused problems for the integration and mainly for the consumer department who was not able to access the data they needed for their daily work tasks.

5.3.4 Organisational culture

All respondents mentioned organisational culture as a significant problem. In this case, the two merging companies had different cultures and ways of working. R1:26 mentions the challenges organisational culture brings for the collaboration. R2:23 describes how they needed to swap into a more agile work method. The major problem was the onboarding process, which was going on for a couple of months and then ceased. This resulted in cultural problems described by R5:17 as "the one-year crisis". The cultural problems occurred when the different work methods collided. Cultural problem during M&As is heavily cited in the investigated literature. Weber (1996); Weber and Yedidia, (2012); Avison and Myers (1995); Henningsson and Kettinger (2016) and Liebowitz (1999) are pointing out the challenges a failing organisational culture integration could cause. Organisational culture affects the whole organisation but can have a substantial impact on the IS integration process as well. From an IT perspective, it can lead to business disruption, slower workflows and resistance to adapt to new systems and IS environments.

The priority form shows that organisational culture is the second most important topic with a mean score of 4,86 out of 7. This shows that employees value organisational culture over other identified critical success factors. This research indicates that organisational culture is of high value for the employees. If the integration of culture is performed in a proper way, the merging companies can avoid the problems described by Henningsson and Kettinger (2016). Organisational culture can then be applied to the organisation's choice of IS development. As previously mentioned company A outsources offshore, while company B develops in-house. To get these two different cultures to cooperate is a challenge, and might affect significant parts of the organisation since tasks can be delayed and forgotten if the deadlines are not withheld.

5.4.5 Information system security

Maintaining information system security is an ongoing challenge for merging organisations. According to Lohrke et al. (2016), IS security mainly becomes a risk during the DD phase. The reason for increased risks is that more employees need access to information through the existing IS. The organisations need to lower their firewalls to access data between the different IT-stacks. The priority form indicates that IS security is not a top priority during the M&A with a mean score of 3,43 out of 7. The interviews conclude that company A and B both had

skilled personnel and similar ways of working with IS security (R1:52, R6:46, R2:51, R4:46). The reason for IS security getting a low rating in the priority form might be due to six out of seven respondents are not involved in the ongoing IS security process. IS security is a necessary process managed by the security teams themselves. The case indicates that it is not a significant challenge for a successful IS integration.

5.4 Theme 4: Information system integration

The IS integration process is the most technical part of this thesis. There are various ways of integrating the systems between merging companies. Lohrke et al., (2016) points out three integration methods: complete, partial and coexistence. R2:28, R3:54 and R7:18 all agrees upon the importance of this integration. During the merger of company A and B they created a co-existing solution where all the data was fetched through an API solution which is similar to the middleware solution presented by Markus, (2000) and Seddon et al., (2010). For the integration of systems R6:24 states that the decision has to be made between either killing the existing systems or reinvest in them. Legacy systems are one type of systems that are important to consider when deciding for technical integration. One of the identified problems for the integration process is the legal jurisdictions explained in previous paragraphs. Employees were forced to sign NDA's, which created challenges for the integration. Employees working with the integration had no idea what their coworkers were working with and had a hard time to understand the bigger picture of the integration. The legal jurisdictions also made it hard for the two organisations to communicate and work together. The majority of the respondents also mentions the structuring of the two IT-stacks in order to get an overall picture of how the integration can be done. This process involves the internal and external competence in-house and offshore, which forces the organisational culture and communication to work correctly.

In addition to creating a successful IS integration, this research suggests that all challenges should be considered as a crucial process for the integration to run smoothly. All employees need to be well prepared from day one and understand how the integration is going to be done. This does not only include the technical processes of the integration since employees from two separate organisations need to work together in this case. The IS integration is perhaps the most critical process for the M&A to be successful. If the IS integration fails, employees will not be able to cooperate.

6. Conclusion

The stated purpose of this case study was to find the distinction between practice and literature for IS interactions during an M&A. The investigated literature worked as a foundation for the empirical investigation. The empirical results gave the required material to investigate the IS integration process further and compare it with what the literature suggests. Both the literature and the empirical results gave the information needed to be able to conclude the research question:

- *How does practice distinguish from the literature in IS integration during an M&A?*
  - *Which processes of the IS integration are important for a successful system integration, and why?*

From the results of the study, the research question could be answered. Categorising the processes into phases of the IS integration is not necessary. However, it is important to create an ISDD on a top management level to evaluate the integration process. This study shows that top management is the most important factor of the IS integration. Top management support is of high priority for employees to be able to complete the processes of the IS integration. Except for the categorising of phases, the main distinction between literature and practice in this research is the importance of evaluating work methods when legal restrictions are still in place. Finding a way to conduct the IS integration during the time organisations cannot talk to each other is important for the day one launch of the new organisation. In order to have functioning IS at day one, the organisation needs to have clear communication and integrate the two organisational cultures with a short and long-term plan. This plan should also include the structuring of the combined IT-stacks and should evaluate which systems to kill or to re-invest in.

To answer the sub-question, the research shows that the merging organisations participating in this research need to consider three processes carefully before the IS integration. The organisations need to put effort into merging the cultures and unite the employees early in the M&A. It will facilitate the workflows between the employees and the two organisations. It is also crucial for the organisations to be transparent. The top management needs to communicate the organizational goals, the integration methods and approaches to all levels of the organisation. The third process is the legacy systems. The merging organisations need to have a working solution up and running at the day one launch. Otherwise, it could have consequences for the customers due to unavailable services. Hence, it is not viable for the future, building on old systems. It will eventually end up in technical debt, costly to both invest in and to deconstruct.

6.1 Future research

This thesis has investigated the IS integration process in the telecom market. The research was done as a single case study in order to understand the phenomenon. The conclusion of this study is that future research in the same area could be done on a larger scale with more participating organisations in different lines of businesses. To understand IS integration more deeply this thesis also suggest that future research in the same area should start in the beginning stages of M&A in order to understand the chain of events and processes more ingoing. Another suggestion is to limit what should be investigated. This research found that legal restrictions are one major problem and organisations have a hard time to work efficiently around the problematics it brings. This thesis suggest that future research further investigates how to work around the legal restrictions in order to minimize the challenges caused by it. Legal restrictions is a field not mentioned enough in the investigated literature, and could be auspicious for academia to investigate. Another challenge found in the research are legacy systems. This thesis suggest that future research investigates how to prioritize and restructure the combined IT-stacks in order to find efficient ways to help with organisations' decision-making. It could consider both the short and long-term perspective.

7. Appendices

Appendix 1: Interview transcript for [R1]

Line	Person	Content
1	Researcher	What is your role within the organization right now?
2	R1	So I'm a program manager. So basically means when a project becomes, I mean when project becomes so large that it needs several projects doing to actually complete, you then call it a program. I'm so in this case. Yeah, I'm a program manager.
3	Researcher	We talked about it just right now, but which integration have you been a part of before? So we talked about company C before have been part of any other integration?
4	R1	No, just the company C integration and also company B and company A fusion.
5	Researcher	Do you see any difference between them, as it is that right now?
6	R1	Absolutely I can go into fairly in depth in that question actually, so I mean two completely different mergers in that way. I mean company C was a acquisition you could say. They were a much smaller company or acquisition that we company A bought up. So it was quite clear who was running the show, and from company A and company B point of view that's more of a fusion merger in not just on acquisition, even though company A board up company B it is fairly equal level when it comes to company size and things like that.
7	Researcher	All right. So yeah your road you describe your role in the process before but can you explain more what to do when your role as a project manager?
8	R1	Yeah sure! So a project management and program manager you kind of do one you need to structure up and kind of organize, what whatever needs to be implemented. So I mean in my case, I'll just focusing on the company B fusion has since that's in bull last thing I've done here but secure day one and so you're giving it to ask. Hey! Leadership team comes down and say hey we need someone to look after; we need to secure day one. And we also need to launch. What are our ambition when it comes from a commercial perspective? What are the synergies that we can do? So you get basically fairly bull Point form kind of thing. We need to secure day one for both companies. Also. These are the commercial offerings that we want to do and as soon as possible preferably on day one. Hmm and it's my task then to then say hey. Okay, no worries. We'll do that for you. These are the resources you need to plan out. Whatever we need to do. Okay, in order to do these steps in order to secure day one also didn't do all the commercial offerings, we don't need to do at this is the timeline now, that's one of my main task. This is the time to do that. And these are the resources required

		and also kind of had a discussion with the leadership teams team see that since there were two leadership teams ones that started this whole thing. Get the sign-off make sure that we have all these sub streams ready, everything the customer service, finance, commercial product, IT and in our case. We also have Network and network behind everything make sure that we have people responsible and accountable to secure what the requests is basically.
9	Researcher	It's very time-limited like the time frame that you have to do all these tasks?
10	R1	Well deadline. I mean, we're very deadline focus or we used to be in that way. As a project manager you always have a deadline. So for example: In order to if you want to do an iPhone launch any company for example, iPhone or sorry Apple, have their keynote speech and then they go live with their that's when we go live with it the new iPhones for example, so that's the hard deadline. If you don't if you're not there on for a second as an example, you can just forget trying to get any iPhone sales for that year. Because customers will then turn to somewhere else. That's an example. So yeah, they'll Focus. Yeah, absolutely.
11	Researcher	So that's the described before we found these phases in the integration process and in your case, how could you divide integration project into different phases and how would you describe them for us?
12	R1	Well, so with any project, I mean you can use different types of project models, but here tell to we use something called a gate model. We're revising the right now a little bit. I mean there's different ways you can do this, but I'll just use this and as an example is because we use them. So there's also a pre-study or pre-implementation phase, right? We call that a Gate 1 here and that means: I spoke previously about what kind of these are the things we want to accomplish, right? So we want to secure day one. We also to have these product offers. And in this case, it was company B mobile. We wanted to launch that. I don't know if you've seen the town and paint it in company B mobile colour certain marketing and things like that, maybe you have seen that on TV? That's part of that and then also so you're given a scope right? So that's scope is then kind of analysed so that's the pre studies Phase. You could say Gate 1. So and that can be weeks. It could be months depending how large it is and this case it was month due to the fact the scope and scale of the actual program. So, Prior to us emerging like way before, year before, basically at the moment when company A gave the offer saying we want to purchase when the intention of buying company B. That's when we started working together in that way and there are a lot of legal ramifications than, a lot of legal mindfully after work around. So that was a part of the pre-analysis. What can't, what are we allowed to do and what and what are we not allowed to do? Since we document everything so that's the pre-phase. As a part of that and then we look at what so feasible deadline for all this and as soon as we kind of get the sign-off of that, this is an all the resources required and also kind of pinpoint the larger milestones for example, the actual merger and because the closer... since I'm just going to give you an example. company B was, have a very large and US based owner and so that comes with some certain ties. I don't know if you remember Enron? Enron was a very due to the fact that what happened with Enron and there's a large accountability kind of... you have to you have to... have to show and display so much documentation in

		order for emergent go through to make sure that your books are actually in order... and so they're not just bogus. We don't have that in the in Europe in this sort of European commission know how that for example, then that requirement that the U.S have so we have since they have a large US Stock colour. We have to then do both of these analyses phases and that took a very long time. Once everything gone into place. We then move into the implementation phase right and that is what we call a Gate 2 at company A, Gate 2 is to that this is the plan we've now actually drawn up the plan now, we're going to execute the plan, right? So that means that from analysing and also in the Gate 1 phase. We also then draw up the IT architecture for all our commercial offerings and things like that we want to do. Because if you want to do something together and get some Synergy effect. So for example and prior to the merger command didn't have access to mobile network for example. Well after once they won't come so comes around they will have that access right? And so we then tailored or commercial offerings of what would be the largest benefit to kind of that we would then. That we can realize right and that was well, let's make company B mobile. Let's make company B a mobile provider as well. So they have the Triple Play service for example, both fibre, mobile, and then also TV. So with that said we then draw the IT architecture in Gate 1 and plan everything and I'm moving to the gate 2 to actually execute this. Right and this phase goes on until the program is actually completed you can say and then after that, you kind of moving to a phase... A soft launch phase and actual commercial Launch phase. And then also make sure the scope is actually realizing that way after that you move into a Gate 3, which is kind of use your supervisor. Make sure that everything is okay. So from a program a project point of view, we're not part of the line organization that way, so we are looked at as external resources, right? So we have to secure that the fact that the line can actually absorb this new work and all these new functions things that it's a part of the actual project plan, but the gate 3 is just make sure you have everything make sure that the entire organization and organizations have everything they need. Once they do that, they sign off on that you move into Gate 4 indeed or sorry! A Gate 5 sorry and I didn't say Gate 3 before, so Gate 4. A Gate 3, if you ever take a Gate 3 and that means that... something has popped up here. We didn't plan for this in the Pre-implementation phase, this new thing we didn't realize that this was actually an issue. Something we need to... then you have to actually go up and kind of have the discussion with the leadership team saying: Hey! This new thing popped up here that we have to take care of, you might need more resources. We might need more money. We might need something else in order to secure that because that's a part of the delivery with that's something we've actually run across right? So that's a Gate 3 so the monitor phase is a Gate 4 and then we close down the program is a Gate 5.
13	Researcher	So the Gate 3 part is more like if everything goes as smoothly as you'd hope it would you would skip Gate 3.
14	R1	Yeah. That's yeah exactly.
15	Researcher	Like reverse and analysed the process is see if anything else needs to be done. We spoke about the pre- the mid- and the post-phase earlier. Can you define the first three gates as the pre-phase, the fourth as the mid-phase and the fifth as a post-phase?

16	R1	So I would say our Gate 1 & 2... well, our Hate 1 is your pre-implementation phase. You're so your Phase 1. And your implementation phase which is the mid-phase that's two and three because three or sorry, two three and four. And then closing down is Gate 5 for us. So that's the last phase. Oh, yeah.
17	Researcher	In your point of view which gate was the most problematic one?
18	R1	It's always nice to draw things in the analyze phase. Everything is nice. You thought about everything. Everything is good. This is something we can do. I would say actually implementing is a completely different thing. That comes with any project and anything, because you always run into things that you have thought about. I mean, it depends on the scale of course, but it's... that implementation phase so your phase 2 or what I call them 2, 3 and 4 that is the by far the hardest part.
19	Researcher	Yeah. I can understand that. But we continue with the next question. So the literature that we've read indicates that it is in the pre-phase or the mid-phase and the mid-phase consists of four stages, its strategy planning evaluation and acquisition itself. Do you find that the literature is missing some vital steps besides these four that I just mentioned?
20	R1	So that's strategy planning acquisition and evaluation? If the actual fusion and merger process lacks anything, is that the question?
21	Researcher	These are like the first gate... these are inside the first gate. Do you agree with these four like topics? Strategy planning evaluation acquisition?
22	R1	Well, yeah, I agree but they're quite general. That's my first take on it. So, I mean you can at somewhere up here. I mean you need to kind of go drill down in those quite more. I mean, but yes, I do agree that there are parts of that. Yeah.
23	Researcher	Is there anything missing according to you? I mean you can narrow it down to how many sub categorize you want.
24	R1	Take planning for example, I mean that's a huge category itself. Right? So I mean if you say planning sure you cover most bases, but you saying that right but now I would say with those four you cover most bases.
25	Researcher	Perfect. You mentioned it before the most critical part of the integration, which you thought was the implementation part. Which problems did you face during that part? during for instance this merger between company B and company A.
26	R1	And when you have okay, so I'm going to give you a very good example. When you have a merger or acquisition of this scale. This is a almost a 30 billion Swedish kronor acquisition. You're going to have two companies with quite clear corporate identities and cultures. So what I mean with that is that you do I do certain things... At one company a certain way and then you do the same things in a different way with other company. And the challenge there is to try to merge these ways of working during a very temporary phase because it is a merger, right? So what will be in the future something that the new leadership team, the new joint leadership team will have to like figure out once everything is in place. But doing this phase, where we're still two companies, but we need to kind of merge them two together. That's a very

		challenging way, because you have to have basically two completely different ways of doing business. I mean, obviously they're better. Especially... I would say that especially in this case, due to the fact that there are two fairly equally science companies, equally sized companies instead of for example, if I compare this to their company C acquisition. It was... you could come out walk into a room and know that well everyone knew who's in control. Let's put out that... in this case fairly equal right? So, you might walk into meeting saying someone is calling shots from the other side. And the other side would then say well we're calling shots, but that would be a big.... Not issue, but I will be it would take time to solve these things. We used to kind of who's actually lead on these which way of working over using... culture wise as well. I mean that's a completed chapter in itself in terms of culture. So but yeah, that's the biggest thing is to kind of give you one really good example. And then also, when it comes to technical implementation, I'm not going to bore you those things, but that can be quite challenging in itself. Because, that comes down to how well does your IT staff, IT and network staff know your IT stack, right. So for example, At company A, think we have over 2,000 IT systems... many of Legacy but as you can tell that's a lot of systems and then they kind of duplicate that now you have four thousand system. I can't remember how many company B used to have. But, how they work together kind of goes into if you're an Enterprise architect. For example, that really puts your skill to a test, right? So how well do you know everything because what you will build together, so in our case we built two IT stacks that we have to kind of in order to launch command mobile as an example, which was one of the commercial offerings that we have. We had to kind of have to come up with a way, because we had a very limited time frame because one of the legal minefield or obstacles was that we couldn't build something together. That was until the murder was done, but that's what we wanted to launch it. All right. So how you work around that? Okay, because so you have to kind of build... Separately and then once all the legal requirements were down you have to have everything aligned. So it was just about fusing it together. So you can use Like Glue the last bits together.
27	Researcher	So you can't do anything before it's legally...
28	R1	Well, you're not allowed to work together, right? We can't put developers in the same room, for example, say hey like this is our IT stack guys, and these are our IT guys. These are their IT guys, hey talk to each other and in that way when it comes to you can draw the pictures. You can draw the boxes say hey; this is our domain for this. This is our your domain for that. Okay, it could be a very large or high level you can have that discussion, but you can't sit there like put team A and B together in the same room prior to the fusion. There's some legal requirements that need to pass first, in order to for us to have that conversation properly in and put them together.
29	Researcher	Because that is pretty interesting because none of the literature that we've read has talked about these legal part of the integration that is just overall talk about how to do it in a perfect life where you have everything lined together and you have the perfect integration phase.

30	R1	Exactly!
31	Researcher	That is what the literature says. But obviously there are some more problematic areas that need to...
32	R1	But they assumed I would say I don't know exactly what literature read but, they assume that everything happens after the merger is actually completed. Does that make sense? So once the lawyers and all the yeah, once all the legal obstacles have been cleared that's what you start working together and that's when you like. Oh, this is our new CEO. This is our new leadership team Etc., but all the work I mean so much work comes into play prior to this right and then there's so many legal obstacles. You kind of have to kind of work around Etc. So you can't play like... if you're playing poker, like if you are one company you could you would preferably play together and you say hey, okay, so you have those cards. Okay, let's win together, but prior to this you would sit with your staff, because you're not allowed to show all the cards. You can't for example, I can tell come as an example. You need to do this. I can just tell them I'm saying I would advise, my advisor. We're Perhaps gonna do this. Where my advice would be perhaps going this look at this route but I can't tell them. You have to do this. That's not allowed.
33	Researcher	Ok. So then in a dream life scenario you will have everything integrated before the legal documents are all done and then you can have just implemented it overnight. That would be the dream scenario right.
34	R1	Oh yeah absolutely.
35	Researcher	I mean I can only do it on a very large scale at first. Like writing down partially what you need to do when the integration process is starting.
36	R1	So you could say so for a fusion like this or this scale. So if you want to implement something together you have to have two separate project. And that's what I also said. But I mean two different ways of working one running the same thing and because you have to have two different one for one company one for the other. Right. And then once we're allowed to do that that's when it comes one way.
37	Researcher	We touched this this topic a bit in this discussion but what do you think are the main threats for an information system integration, he ice integration part?
38	R1	Well I mean one link to a Fusion. I would say I mean long term you can forget about that. I mean what you're building from start from the start or prior in our case that is something there'll be a technical debt. Something that would have to be revised in future because in order to reach to go to market or the market as soon as possible. I mean our ambition was always trying to have a to be as fast as possible if we would have started the work that we completed. And now if we started that wants to merge and when it was actually approved and everything was sound that would have probably we wouldn't be out with company B as a mobile provider. I don't know maybe from now six months from now when I think the merger went through in December November and so and we started releasing commercial offerings just a week after the merger. Right. And I'll give you an example and one our competitors they had a similar thing when they actually bought up another company. So if you were a customer and if you have products with both of the companies merging they wanted to

		give you a benefit for being a customer of both in order to come and get those benefits and the benefits could be no extra day down your subscriptions for free in order for them to realize that. You as a customer had to sign in on their web page, call the customer service well they would guide you through this web page and where you would have to print out a PDF document printed out, sign. And what benefits you wanted. What subscriptions you had etc and which subscriptions you wanted to link to and then put it in three envelope and then send it across to the company itself and then you would get a confirmation that after a few weeks, that was their kind of opening and commercial offering. We thought we can do much better than that. So what we wanted to do then we had the same ambition. So for example in our case I don't know if you've seen but you can get extra features if you're a customer with both company A and B in order to realize those benefits you sign in to your "my account" page and then pick the benefit you want. And that took a year to plan and getting in place but it was out a week off that we did that merger. As an example.. And so to give an example with our ambition was to come up and excede our competitors by far right. I mean they'd just done that prior to that. But you cannot give an example how long it takes to do something on that which as a consumer looks like oh okay. Well that looks nice to me but it's all about keeping the customers happy. I don't know if i drifted from your question.
39	Researcher	No but I think it's still in the in the right area. But we'll go forward to the next part which is, you talked about the introduction phase the gate one. So before going into the M&A it's important do the pre research, so did you do any research for the for the merger between company A and company B, mainly from an information system point of view.
40	R1	Yeah you have to do an inventory that is part of the pre analysis so get one in our case right. You have to. So what do we want to achieve. Okay. I said one sentence one up security one. And also the second set those launch Company B with our solutions. Okay. As a part of that analysis and pre study what systems do we have to our disposal. How is your IT stack formed. How is our IT stack formed and what's the possible solutions that we can do with this timeframe. But but also an inventory research about the different companies involved. Right. So mean I know company A fairly well how well do I know company B. Well I know that they're a fiber provider and a TV provider. I know they used to be a part of another big player on the market. But how many staff is actually involved and how. What do they what's their revenue. These are things important things. That's part of not just doing the inventory. It's to make people buy into what we're doing. What can I explain. I mean we have a lot of foreign stuff as well and that weight needs to kind of explanation what's happening here. I mean we've heard we did a big merger or acquisition here. I mean we are a lot of staff in Riga and also in India for example. OK what does this mean for our company. Because they might not know company B at all. Inventory of IT systems is quite important and also how the domains actually better. You can have different responsibilities and kind of go back to your original question.
41	Researcher	Because the literature calls it the yes due diligence. So there's a prior research on how to integrate the systems. And the literature says it's one of the most crucial parts of the introduction phase. Do you agree with that?
42	R1	Absolutely. I mean you kind of base your entire project plan on that.

43	Researcher	You pretty much explained it but what why was IS as due diligence so important for the integration process itself in the later stages? What did you get from doing a very good pre-research.
44	R1	Well you see what's feasible from MVP point of view and MVP (minimum viable product). You know that's what can we achieve short term and what do you want to achieve long term. But it in acquisitions and mergers you can't talk long term because in a few months time you might have you will have a new leadership team in place. You don't know who's gonna call the shots there is no point talking long term. A year prior to the merger. So when what's feasible. You see what we can actually do. What are the different options that we have right, without that you can't achieve that goal.
45	Researcher	Let's go through this introduction phase of this due diligence phase where you able to identify how you would merge the like two thousand different system from company A and the two thousand different systems from company B. Did you choose to do a big mash up of everything. Or did it choose to like make everything from scratch or like a coexisting or create a co-existing system.
46	R1	Whenever we do things like this. You don't have to merge all the systems that way because company B will still be company B at day one. They want company A will still be company A at day one. Right. So all their normal business will be normal. It's the only complicated part is when you want to do joint product offerings together or if you want to actually link them in some ways in order to realize any synergies for example. So in our case we want to realize the mobile provider part for company B. Right. And OK. So we have the network let's say company A and company B that is have the CRM system where they can say if you a human calls me in and say hey I would like to sign up for a subscription. OK. Let me see what we can offer you kind of thing in order to do that. We then have to link our network systems with their CRM system. That's an example. Different domains in that way. And that is the only part you need to focus in on that. Right. And you don't have to all this target architecture you wanted to look into the future. You can leave that after the merger.
47	Researcher	But is this still a priority in like merging them later on?
48	R1	One of the key things, one of the key things you have to do after the merger is. I mean now you have to customer care systems. All right. As an example platforms. Which one do you use. Now we have two CRM systems. What do you use. I can go on. Right. So the target architecture decides what is our future which systems are we scrapping which systems are staying. Right. Which systems are becoming legacy in that way. So and that's extremely important because licenses for X amount of systems are extremely expensive and you obviously want to cut back on that as soon as possible. Right. And also train your staff in all these new systems, one part it will be brand new for another probably old stuff and also kind of inform everyone what the future is.
49	Researcher	So pretty much it's a short term solution in the beginning to be developed into a much better and less complex solution in the future.
50	R1	Yes but that all comes down to what type of merger you want to do. I mean we are very IT focused and Sector or industry. I mean our line of business is very network based of course but we have quite a lot of IT as well. For non IT based mergers. You have, the focus might not be at all to kind of do anything for day

		one. I think that the links IT system together. So you don't have to report about the short term in that way. You can use it once to merge it and comes in. You can use focus on the long term.
51	Researcher	It differs depending on which line of business you're working in. Yeah. Perfect. And the last thing that we found in literature is that cybersecurity is a big threat towards a successful IS integration. And how do you work to maintain a high level of cybersecurity when integrating like the systems.
52	R1	Well I'm probably I mean not the best person to ask. I don't know the exact technical details but I can give you like the high level I mean one it will work. I mean the security that was there prior and remains, right. But secondly if you do something together you have to then. Realize how do we secure like the infinite line. Or that the single from not going out in a public domain. That's very important. And once we know what all the API so we want to do together or that we want to link with each other we kind of make sure that they follow the same protocols for both ends. Right. And you see it like in our case we had quite similar ways of working for the IT security in a way. I mean I just want to make it tough as nails. So I've heard you're gonna talk to one of my colleagues soon he will be able to provide you with some more technical details with us.
53	Researcher	That's perfect. That's why we have this mixture between all of you guys. But we're going to round up with a few last questions. So for you, How would you define as successful Information System Integration.
54	R1	Well that is a very big question.
55	Researcher	It is, absolutely. We're defining it in time, quality and costs. What's the most important part. Is it like it's going to be fast then maybe it costs a lot?
56	R1	Well it depends on what the requirements, what the scope is. So for example if you're if your leadership team says "we need this fast". Well obviously it's gonna have to be less quality more focused on speed right. But it all comes down to what you want to achieve and in order to be a brand new competitor on the market in Sweden I mean there's, you can't just do it half assed. You have to do it with the quality mind but at the same time we had a very hard deadline. So you're going to have to focus on securing the resources necessary to meet that deadline. And that can be a big thing. But I mean it depends on the... cost for example. That's also important right. But when you have companies of this size resources are usually not the problem in that way. It's about just securing the resources because they have their normal work. I mean besides the merger. So how do you make them prioritize correctly. So that's like the most main thing keep depressurization within both organizations say hey this is extremely important that we want to do. I am focusing on this, focus less on whatever you did before and making sure that all their managers are informed and all the other managers are informed on the other side and so on. But for ISS I would say quality because otherwise you build up a quite big technical debt straight off the bat. So which could take years to kind of rebuild in that way correct. Right. Because once you didn't have the merger you then walk into a target architecture what will be our future IT right. How would that look like. All right. Okay. All of these that we use built for half, a year and a half. That's great. That's selling we're each and assuming a good way. But it's just making it extremely complex in the backend right. Which makes it. Very tough. And then way to we have to rebuild. Yeah. Quality is probably the main thing I would focus in on that. But once again it

		comes down to what the ambition is for the goal of the company. So do the people that's leading it if they want to. You want earn money in the end. I mean that's what I mean we're private companies in that way. And how do we achieve that at the same time not building a big technical hole which we kind of have to dig ourselves out of in the future.
57	Researcher	So if you were calling the shots for this merger you would allocate all the resources towards a quality solution?
58	R1	No I would think it depends. I mean it depends, if we want to earn money as soon as possible. I would focus in on speed but that could be a very short term thing right. I mean great. You called up our customer service and everything worked there but once you got your handset and then you started calling it nothing worked. I mean you wouldn't be too happy would you. So you're gonna have to have a mix there. But it all comes down to what the ambition is and also how well you plan everything.
59	Researcher	Is there anything else you would like to add that I think that we have missed during this this hour?
60	R1	I feel like you're focusing on that IT part. And since I'm a Commercial program manager network quite I mean I had the overview look at the commercial product offerings that we want to do. But in order to implement everything the IT systems is a part of my work as well but I have three people or three IT product managers that look after that for me for example and one person that you are interviewing is one of them. But in order to answer your more technical questions speak to my colleague would be good. He was one of the architects that we had in the beginning, almost from the start. He has a large part of the employer, the most important part is the pre-implementation pre-study, by far. Because, how do i put this,there's the there's so many reasonable so many am and is merging two different products for us for example into the one... There's so many things there that you have to go. I'm just trying to formalize. What I am thinking. But if you want to have some key takeaways from me I would say pre-implementation. Most important part by far. Planning also. Second thing is get people to buy into what you're doing and if you're looking at an IT point of view. I mean there's a lot of people that knows everything, trying to get two sides of that work together. That's quite challenging. So if you have two sides and knows everything. I mean once I have to give or at least someone have to kind of say this is we'll work with you guys. And thirdly culture. This applies to IT systems in that way but because there's a history for both companies saying We've done this. And then the other say that we've done this, this is way better. So you have to kind of play with people's egos quite a bit. That's a big part of this. Yeah. That's my kind of three takeaways.
61	Researcher	Perfect. And the last thing, this might be a sensitive question. Uh but do you have any documentation that we can use to support our empirical data. Like, how do you make decision management or so?
62	R1	I mean I. For the merger. I can't give you any document their documentation with them. We have a general project management type of documentation in that way and I don't think you'll be too interested in that. Just describes what are different. Might get one two and three and four or five is but due to the sensitive nature of the documents. I can not share that with you.

63	Researcher	But if it's possible we can get some documentation of the five different gates. Is that possible.
64	R1	Yeah yeah, sure.
65	Researcher	Just to support what we found in the research with the different faces because I think that would support our research.
66	R1	Yeah but that does what I'm saying. That will be more general.
67	Researcher	That is perfect.
68	R1	That that's something you can imply on any project. Yeah yeah yeah no worries I can I can make sure that you'll get that. Anything else?
69	Researcher	There actually is. It's not a question, because we do in a case study which means that we need to have some secondary data to support our arguments otherwise it's not valid. This increases the availability. We need another source. Yeah. Yeah. That's why we have created a priority forum. That we might send to you later on today. Okay. It takes like five minute not two minutes to do. It's like rank from 1 to 7 of what do you think is most important before the integration process.
70	R1	Yeah of course , I am happy to help out.
71	Researcher	Then I think we're done. Yeah cool. Thanks guys.
72	R1	Thank you and good luck!

Appendix 2: Interview transcript for [R2]

Line	Person	Content
1	Researcher	So to begin we will go to like an overall questions, like What is your role within the organization right now?
2	R2	And I'm a Solution Architect and for the online parts of company A like for our sites, apps and so on.
3	Researcher	Have you, in which integration have you been a part of earlier? Have you been a part of the company C, company B?
4	R2	I was, I was part of the company C integration but more as a lead developer in because, I have worked as a developer in company A work which is our work self-service portal basically. And we have, they are taking over that the company C teams are not part of an integration because we haven't really integrated those two platforms yet, but yeah a some kind of integrations. Yeah. In the company B merger I was both lead developer and solution architect but because that was the first assignment as an architect for me. So I started off as the developer but ended up doing architecture for the solution as well. I was, I was part of the company C integration but more as a lead developer in because, I have worked as a developer in company A work which is our work self-service portal basically. And we have, they are taking over that the company C teams are not part of an integration because we haven't really integrated those two platforms yet, but yeah a some kind of integrations. Yeah. In the company B merger I was both lead developer and solution architect but because that was the first assignment as an architect for me. So I started off as the developer but ended up doing architecture for the solution as well.
5	Researcher	Can you describe what you do within your role?
6	R2	I'm always like in the beginning our projects. The commercial teams they start with, they have an idea basically in this case it was the leadership teams for both come home until the two that had an idea of wanting to be able to sell each other's products or offer something to like our customers at the beginning or when the deal was done basically. And then they come to us and asking for architects to come up with a solution. And in the beginning it's always like can we can we do it to start with and what can we get out till this date. Basically, because in this case we started from IT which is not the usual way. And usually it comes from commercial and then they ask IT, and we start drawing some architecture for its high level. But in this case they wanted to see what they could do IT wise within the timeframe. So that's where I came in basically to start discussing what we could do together with company B and it was quite hard in the beginning because we couldn't talk that much about our systems because we weren't allowed to legally. Yeah. So that's when it started.
7	Researcher	And how long have you been within the organization.
8	R2	Three and a half years. Yeah.
9	Researcher	So then we jump over to the more like specific questions.

		So can you divide your integration process interfaces? And if so can you describe them?
10	R2	How do you mean with phases?
11	Researcher	Like, in the literature it says that there is a pre-phase just like a post -phase and in the middle, it can be some authors says, a middle phase.
12	R2	Okay.
13	Researcher	And the pre-phase is more like evaluation strategy and so on. The mid phase integration and the post-phase is when it is like...
14	R2	Integrated!
15	Researcher	Yeah everything's integrate and you follow up and maintain it.
16	R2	Yeah, I mean the pre phase was mainly us architects both from company A and company B side and trying to come up with some kind of MVP what we could do and MVP is... You know what it stands for? It is minimal viable product or something like that. And so obviously we had some requirements of what they wanted to achieve and we were just trying to see what could we do within the timeframe. And we just had a lot of meetings together with some commercial people to try to get us in there, to understand what we wanted to achieve and the integration itself. I mean the pre study was so long. So the integration and the Post integration or whatever. And that went quite fast.
17	R2	And the study to come up with what we were actually going to do it took a lot of time because...
18	Researcher	"NAME" who we interviewed before, he talked about different gates within your own work like processes. So which gave you mainly working in?
19	R2	Yeah. It started off as a gate project. That's correct. And I don't know in what Phase I came into, I would say probably second or something like that because the first phase I would say that there was just "NAME". That was program owner or something like that together with like the leadership team or "NAME" or "NAME" or something like that. Trying to come up with what we wanted to achieve. And I guess gate 2 is when we started planning for it and I came in.
20	Researcher	And then you if you're like, you continue to be within all other gates right?
21	R2	Yeah. I was, I was there through the whole project.
22	Researcher	So during which phase did encounter the most problems?
23	R2	Implementation and I like to study obviously. Because when we tried to, yeah it was obviously a lot of problems legally wise because the process itself was that we discussed things and put some notes in it. And then when we had when we were supposed to send it over to company B we had to put it in a legally box that McKinsey or whatever and they were going to review it before they could see it. So to not be able to speak freely about what we wanted to do how we could solve things that was obviously a problem.

		Then implementation wise we had a lot of issues because we were switching to this new organization that was supposed to work agile, like the Spotify model. And the team that was supposed to do the integrations was not really; they didn't really know what they were supposed to do because all they were just new developers and so on.
24	R2	So that was also a problem. So if we could started it because I, I had been a developer here for quite some time. So how it actually started was me just setting up an API. And like having some on boarding with the people that was going to develop it saying like, do this, this, this. So the start-up was...
25	Researcher	So which process was the most important during the integration?
26	R2	Well I would say the pre-study study.
27	Researcher	The pre-study?
28	R2	Yeah because he took a very long time and that's when we came into the implementation phase. We had already seen most of the problems that could occur. So when we know what we could do and what we wanted to do. So it was quite straightforward what we were supposed to do. We had all architecture in place.
29	R2	Yeah.
30	Researcher	So it's pretty much the planning and evaluation of the upcoming integration itself?
31	R2	Yeah! Because usually we don't have we haven't looked into what problems could occur like randomly so we just start building stuff. Yeah. Run into a lot of problems along the way. But in this case obviously you're always going to run into a lot of problems. And one other problematic thing was that company B couldn't hold their deadline. So we had to deliver for when we were supposed to deliver. But they were a bit slower on their end. So we had to do fixes to not include company B in the first release and so on.
32	Researcher	All right. But it is different between the company B and the company C integration or was it the same problems in both of them?
33	R2	As I said I didn't work that much in the company C integration so I can't, I can't say I think they had a lot of, because we, that was a different integration I would say. I think company C more lives as its own, it is just named company A now. But in company B we actually started selling company B mobile which is the same product as company A. So I would say is a quite different integration. I don't really know exactly what the integration we company C.
34	Researcher	What do you think are the most critical part of the integration process? What's the most important part?
35	R2	I would say again the pre-study because for the reason that we tried to integrate two completely different companies, that... and we have different work meth-

		ods we have different best practices. We have different tooling's. We have different mind-set. So just to come up with some kind of way of working together is hard. And like along the way with this pre-study we came up with a way of working and we became closer, almost friends and then it's getting easier. So yeah in the beginning it was really hard because they had this mind-set and we had this company A is always running really fast. Why company B is more of... they focus more on stability and equality and we focus more on deadlines.
36	Researcher	Some cultural clashes?
37	R2	Yes
38	Researcher	Did you overcome this problem or like did you try to use the same best practices?
39	R2	In some way we did obviously but like in the end of it when we were supposed to deliver they were not done but we were and for them... they were like - but this is how we work. We say we have a date but we are not releasing on that date. But we have talked for several months about here we are going to deliver. When we say deliver we actually put it in production on this date so overcome I would say, no not really. But yeah.
40	Researcher	Did meet up and have like something in between you could or was there any solution for them not keeping up with the pace that you had?
41	R2	No I mean we met regularly like every week, I think we met on Fridays or whatever and talked about the solution and but we started when we and making mocks or whatever and so we had something to deliver to them in like a test environment along the way. But they wanted to have everything in paper before they even started and then they had to put it into spring and things like that. So did that answer the question? I don't know.
42	Researcher	It is fine! So over two threats, which are the main threats or risks for any information system integration?
43	R2	Yeah, I would say you have the legally boundaries and also I would say culture and deadline to that. Because yeah, here we wanted to provide something to our customers like when everything was done when Aftonbladet writes about company A and company B is now one company and the next day we actually wanted to provide something. If you were a customer in both places and if you have different where you're working then it's really important that you can say and deliver on those dates because that's.... Oh yeah I don't know but I would say that that's a big risk.
44	Researcher	But in a more technological perspective what, what was the main threats for the integration itself and the work you did?
45	R2	Yeah that's also obviously a risk. I mean you have different way of coding and drawing and thinking, we always have proxy and we use a lot of microservices. So I don't think that was a big challenge for us because they were with same technologies and not same code language but it was quite easy to manage those

		kind of things. We came quite fast. We came up with a solution to have basically two walls of like two APIs so every call that company B were supposed to do would go towards our service or our API. So we had full control of what they could access or not access and they put out put up similar API on their end. So all integrations and even it was supposed to go down to buy to be as core. Like to get information or if they were supposed to just do calculations is always to this API. With that we could have had something to say here and but you can do all kinds of things on your end. But for both for us and for them they just had this. Yeah, slim API make you go there and you get this information and we could always control what they could see and get them. So yeah.
46	Researcher	Because one of the main problems is that we have understood is that on your hand on teller too you have like 2000 different systems and then come home has 2000 different systems. How do you integrate those systems together to work in you know like a real, good environment for everyone using them.
47	R2	Yeah. And that was what I was trying to say because on our end we had 2000 systems and on company B they have 2000 systems but we made that to APIs, one that we go towards and one that they go towards and it can be for all kinds of thing it could be and send an order that get your phone. And in our end we do all kinds of... from this API we talk to a lot of Micro services and other like BBS-core and whatever but they don't have to care about it. So there weren't a lot of calls going towards... they didn't have a call that go.... went from one service to a service in our back end systems. We just went to this API and then from there we could manage where they were supposed to go to get the data or send the data.
48	Researcher	So this was more of a short-term solution that was developed into something new and better?
49	R2	Yeah, when we were one company we were supposed to tear down this wall. Basically this API and start integrating and we have started with that but we haven't. We have a long way to go.
50	Researcher	It's a long slow process. So the literature mentions cyber security as a important part and a big threat. How do you work with cyber security?
51	R2	I actually don't know really. I mean an API we don't proxy with API key and so on that's secure. I would say and then we have Devops that were involved in this saying it is secure and then we didn't think a lot more about it.
52	Researcher	You have a part of the company like this, a department?
53	R2	We have a security department. We didn't involve them, like this APIs, they were set up to be public. So you just went on Internet by HTTPS that is secure. And when we say open I mean everyone could use this APIs if they have the key. So we don't we didn't really need more security than that since they're not there's not a lot of system talking to each other directly. They always go online to fetch the data with a API key.

54	Researcher	So we're going to end the interview with some general questions. So how do you define a successful information system integration in terms of time quality and costs?
55	R2	Yeah I would say to be I mean it's really important that you know what you're supposed to build. So if you have great requirements then I would say a successful information integration would be to in the time you have to come up with the best solution you can and provide some value. Obviously we didn't fully integrate with company B in I don't know how long time we had six months or so, but we delivered something that added value for the customers and for company B I would say because we add company B mobile. So just deliver something that provide some kind of value in finding out.
56	R2	So you don't have to fully integrate.
57	Researcher	But before going into the M&A, what kind of research did you do for the integration itself? Because literature suggests that due diligence is one kind of way to identify how you're supposed to like technically integrating the systems itself and how you are supposed to do. If you do it in-house or if you do it by hiring external resources to do it. So how did you analyze it to find the right way of doing it.
58	R2	Yeah but what you're saying is that some corporations when doing this are hiring...
59	Researcher	Yeah it's like an evaluation of how you're supposed to do the integration itself. Which resources are you supposed to use or supposed to do with in-house or you should it's like analysing all, all major possibilities of the integration itself.
60	R2	Ok I would say that where are such a big company, I would say that it would be hard for some kind of... I don't know corporate that does this or whatever but I would say it would be hard for them to come in and in the time we had like six month. To come in and understand what kind of system and what kind of legacy we have because, yeah the legacy is also a big thing to this because to understand the legacy you have to have worked with it for months or years and for them to come in and say like you should go there and they should talk to that system should talk to that system. I would say that then you need to have more time for the integration. It could end up being better but I would say they shouldn't. They would never have made it in time.
61	Researcher	Do you think it differs depending on which industry your work in?
62	R2	Yeah I would say that definitely.
63	Researcher	Because the research says that like CGI has some solutions for an integrating system, which has been successful for many companies. Do you think you might have been of use for you or do you think it's better to do with in-house instead of using external resources in that matter?
64	R2	No like I said I definitely do see it as a possibility. Doing it now but not for. We had to build this in-house I would say because we only had a few months and I mean this integrating system or whatever that CGI has... because we have worked with CGI in some, in some systems that we are using and they are...

		they are obviously huge and I would say that it would be too hard to like use our stack and on top of that are these CGI stack that are supposed to manage integration coming from us and company B. But I definitely see it as a possibility of doing it now or when we have a limited time to do our final integration.
65	Researcher	Yeah. You touch this subject before but the integration itself. You chose to do an API which you can access all the data from. It's pretty much what you answer already. But did you integrate them together partially or create a new one. So is it it's just a scale from the beginning which you will build onto in later stages after the merger?
66	R2	This was brand new APIs that are talking to legacy systems and by doing that... because you're in the end; this API is basically a proxy that knows where to go to fetch the data. So what we could do when starting tearing this down is just to take, take one of the API it goes toward because this proxy goes to I don't know eight or nine different systems. So we can start with one and just say to company B and basically you can go towards this system and use this key instead and it should be the same model that is returned and the same data you're asking for and so on. So it would be easy to do this except for firewall issues but I don't know if we have those anymore because now we are one company so we should be on the same network and so on.
67	Researcher	So what do you mean with a legacy system?
68	R2	ah, Legacy system is... I would say is a system that has lived for a long time. I mean the stack that was implemented in the 90s or whatever one just started using systems basically. So we are one system that's we're migrating from now to company C. And I think that system was starting being used during the 70s or something like that. But we're we still get data from that. That's where the data lies for some of our customers. So we have to go towards this system and these integrations are they are always so based and the specification for the APIs there is usually are really old word document with 10 pages and it's impossible, it has all kinds of data that you don't need. So they're quite hard to work with. And rather hard to integrate as well. Yeah. I would say so.
69	Researcher	So the legacy systems are like a major problem for the integration?
70	R2	Yeah! I mean at all big corporates have legacy systems with a lot of data so you can't just replace them and you have to build them away. I think company B has come quite far in this matter but we don't. I mean if you work with a start-up for example you don't have legacy. So it's quite easy. And that's why Spotify for example can just push out new releases with new cool stuff. But for us it takes a lot of time because we have to rebuild our entire stack for doing one small thing and yeah, for a self-service portals or whatever. We always have to go fetch the data from these old systems and yeah. As I said we can't just remove the whole legacy system because it talks to a lot of other things that make this whole thing work.
71	Researcher	It's complicated.
72	R2	Yeah! And that's also why I mean bringing out, or bringing in people to try to help with integration. I don't think it would have helped because if you had to

		know about the legacy to know what your capability is. Because they could obviously say - just put this system here and it talks to that system and that system but this system may not be able to take more than 50 requests a minute. But they don't know that.
73	Researcher	Do you define it as one of the biggest problems during the entire integration?
74	R2	Yeah, I would say. It's why I didn't think about that is because we always have this issue whenever we tried to do something new. We have to think about the legacy and what can we do in the online part. I mean we have a lot of FTPs still where we get a lot of data that we put into an elasticsearch instance for you using the app. It should be fast. But our legacy can't handle that speed that the users or the customers want. So we always come up with solutions to and get around the problem with legacy.
75	Researcher	Ok. So is there anything you want to add to the interview something that we missed?
76	R2	No I don't think so. As I said in the beginning it was quite some time ago so I, I don't remember all of it but it was a really fun project. I don't know if I will ever do something this fun.
77	Researcher	That was all, Thank you for your time.

Appendix 3: Interview transcript for [R3]

Line	Person	Content
1	Researcher	All right. So let's start. Thank you for taking the time to participate in the interview. It really means a lot for us. Yes, so we start by introducing our thesis as it is. So this interview is for the empirical data for our Master thesis and as you already might know we chosen to research the processes and the phases of an M&A and the IS perspective of it. We've done thorough research for literature the stretching back to the 1990s all the way to today and in our research of the literature we found that there is the most critical part of this information system integration is the pre-phase or the gate two as I've understood that you call it here. The literature says that is the preface. So we narrow it down to those two processes pre-phase and mid-phase. So the integration itself and the literature mentions some critical success factors, threats, IS due diligence as an important part of it, integrating methods and maintaining is security as the main areas. Beyond this we hope that you can help us identify. What you see is the most important in in your daily work. So we start with some introduction questions. So what is your role in the organization?
2	R3	Yes, I have worked here for almost nine years. So with IT mainly but not only IT because this is the workouts in the product management area, but always covering a technical notes. So it was a solution architect many years in the yeah. In the BSS mainly area but working with all the domain that we have. So the channel to BSS the network and so on and yes some period as a technical product manager. That means not earn on the IT side but on business side about a helping them to interact with the IT. So that's the role in which I worked in this projects with company B in this role. So working very close to the commercial side of the marketing the working with new ideas. I was very clear what those and yes to say. "Okay, we want to do realize this please help us to do this with the IT". Don't bother to write to the right person's to clarify to commercial all the issue or situation that they can happen on the IT.
3	Researcher	So like a bridge between?
4	R3	Like a bridge, yes, exactly. So in some part you are facing which are all involved with the commercial side and then some part in which you are with the both sides and then some part in which you work mainly with the IT side. So it's an entire process depending in which phase you are.
5	Researcher	So I suppose you've been involved in the company C integration as well?
6	R3	No in the company C, not at all.
7	Researcher	So only the company B?
8	R3	Yes.
9	Researcher	All right, because every practical example you can give us is much appreciated.

10	R3	So this company C is here, now we have it is organization that is very divided between consumer and business. And company C is a business. It's a large Enterprise and I work there until last November mainly with the consumer side. And so that's why it was not involved with the company C that its large Enterprise.
11	Researcher	We already touched your role in the integration projects as the bridge between and yeah lets start with the with the main questions. So if you were supposed to divide the integration process between company A and B how would you describe them for us?
12	R3	What do you mean with integration process, the merging process?
13	Researcher	Yeah, but the different parts of the integration so the different steps that you take.
14	R3	The company integration you mean?
15	Researcher	Yeah.
16	R3	Because I said mainly we work the directly with, okey when company A decide to buy or to merge with the company B. Basically as I said immediately the commercial side decided to have the same product data. They wanted to have immediately on the market with a very short a time to Market. So for us the integration was meaning to put in place everything that was needed to realize this these demand from the business side the so we were not involved in the party, you know to merge organization that is this is still on-going because the still we have quite the separate organization and not completely integrated with separate IT stack. But what do we needed to put in place is to have some bridges to be able to deliver what we needed to deliver because you talk about the company C the integration here you see I was not involved but this is still on going after years. So it's quite a long process that we could not wait. So the point is to okay now, we are one company we need to be able to sell the something together to give a benefits to both the customers. That is what maybe R1 described because that was the b2c project for instance. And yes, you have two or another organization that you don't know at all. So the first thing is to identify, to try to understand that a high level of the work to identify the resources that were needed to talk to each other and to put together as and plan to reach what we want to reach and... Yes to try to collaborate in a good way. But we were not the merging the organization. I mean we were working at to two separate organization but trying to work together to reach our targets so data for us was the the challenger the integration that we need to do to put in the same room, the right persons because for instance when I started the other project to the B2B we started with the big Workshop there. The challenge was to identify more or less the needed person. So from the company A they said they didn't have any problem. But from the other side. Yes, we needed to understand who was needed.
17	Researcher	Was you also involved in the Gateway, the gateways.
18	R3	I was not a general manager like R1 so I know the gateways and how it works. But basically when I was involved in some way that visibility was already done, but understand it was done a very quickly because as we said here the time to Market was the key. So basically we went to directly. Okay this we know can be done, but we needed to put in place a solution and started the project and delivering this if possible to this deadline. So not really, let's say especially in my

		project this B2B we didn't follow really the normal Standard Process. We missed a lot of steps that usually are mandatory. But with the because we got to the input from Top management go directly there, putting in one room all the people that you need and try to go forward. So a lot of steps before. Maybe the B2C not so much but in the B2B it was like this.
19	Researcher	But did you create any other processes for you internally in this project for yourself?
20	R3	Basically, we follow yes standard the project process. So basically we knew which were their requirements. Basically from the commercial side. We put in one instance lights the very high level because we didn't want the Matrix with the 200 requirements to discuss and basically as I said we discuss this with the key persons from both sides the to see what was feasible and after that with other key person to have a solution or to reach what we want to do to reach. So the process was very agile, It was not a very... in some phase not very structured the but we needed to keep in mind what we wanted to reach and just to do only what was needed to reach the target. Here it's been so very often, because I mean when you walk with different operators sometimes it is the time to Market that is driving everything. So just whatever the process, I don't know but if we look at company A at launch, we cannot wait to one year to respond. We need to respond within one month or if we don't ever we needed to put in place something
21	Researcher	Then I suppose that you have strict deadlines and everything?
22	R3	Yeah, exactly. Exactly. So and then and the when we do stuff like this, we introduced a lot of the technical depth because this means that we put in place a solution the temporary but not usable for years because after we have the some again urgent stuff are just so we you cannot solve and they have a lot of technical depth that grow all the time.
23	Researcher	Which processes during this integration. Did you find was the most important ones?
24	R3	I think okay just definition of the requirements in solution for sure. And that was very important to agree with the with the right person. So with the key Architects and the ones that we have the disagreement that that was also very challenging to find that the resources from both the companies because we work in different ways. So that was not so easy to secure the resources because a lot of different domains areas were impacted in both the companies. They were very busy with the TV project that is also very high corporate, but we needed these resources also for our project. So there is always this kind of a fight with and if it's a very complicated in for instance company A to add one more organization this increase a lot. This is a problem because you have to fight with many different groups and on our cases where the problem also to talk with the right person to secure resources in the different areas. So these ones are also challenging still and I think it will be for a while a challenge.
25	Researcher	Yeah, of course. It's an on-going project all the time.
26	R3	And when the two organization will be what to say about it, even if on the papers and groups are now match the will be a challenge.

27	Researcher	As we mentioned, literature describes critical processes that is key for a successful integration. Which processes do you think is the key processes for a successful integration?
28	R3	Yes, you need to study to understand what we are talking about. Okay, you can put in place some theory, we should do this, this, this but you need the to see the cases because very often a company has a different history. So they are quite a unique in some way. So you need to understand how the two companies are unique and how to merge and sometimes they have also different philosophy because of what they noticed the first day that when we started to work, to participate to Big meetings with company B understand that they are going in a completely different direction that what we did just to say a very clear example, we started two years ago to do outsourcing all the big parts of our IT with the resources in India and before it was in Riga now it is more and more in India. Company B did the opposite. I mean they had stuff outsourced and now they have everything in-house so it's a completely different approach, so for an integration, first of all, you need to understand, okay. What are they are doing what we are doing to have a clear common strategy if we want to integrate. Otherwise, we will continue that's also possible of our a number of years with a different approach and way to work but then I mean if you want to really to integrate, okay, It is out of my level, it is on a very high level. I mean which is the strategy, how we want to do it here. We are also seeing that they are putting everything in-house. How do we want to continue we will do the same in all the IT organization. We keep a different strategy per domain. Let's say considering company B like a separate domain. I think that it's very important. I understand what's going on. What's your situation? What is the strategy and what will be the common strategy and what will be the steps to reach.
29	Researcher	Are they going to continue with the hiring in-house?
30	R3	I don't know. I think that there are some discussions about that. I think in the short terms and the for short times. I think that they will do it for two or three years. They will continue and company A will also continue outsourcing offshore. The I don't know if they do will continue to Outsource because we did this biggest step that the plan was to continue to all sorts of other pieces and now this will slow down the processes.
31	Researcher	Do you think it's good to Outsource compared to have everything in-house?
32	R3	I think the main benefit that company A found to outsource is the cost but it is necessary to understand if this cost in the short term also will give a benefit in the long terms. So it's a quite complex. I mean the have people working full-time with this kind of studies, but when I say OK, I see very clear the difference. I mean, okay, we pay per hours in India, but at the risk is that you need the more hours because it's an are not alike at all to put all in one room. As we did, you know and we agree we take their white board. Maybe what we can do in one to two meetings but with people working on the other side of the world. Okay with the video conference you can use what you want is always more complex with the higher risk of the misunderstanding. So maybe yes, you do in at a lower cost you know, it is a small example, but maybe you need to five meetings instead of two and so if you compare the cost is at the end similar, but you need to do of course a lot of study to see the difference.

33	Researcher	So which are the main threats that you can find that is crucial or critical for an IS integration between two companies. Is there any risks?
34	R3	You need to understand really how to integrate. So the risk is that you... I don't know I which level we are going because if we go to very low level yes, the risk is that you break important process or functionalities. So you need to study in details every process in everything. As i said to understand what they do, what we do and how to match and we are at the many levels because if you say okay if you merger groups and you need to reduce groups you risk to lose good competence that at the moment maybe you don't think it's important. But afterwards you see what you lost. I mean there is the technical and the organizational and in every step there are risks. Even if you prepare, you see on the paper that this works, in reality it is different and sometimes decisions are taken at a very high level and sometimes there is not a good understanding of the low level. So there is a risk that all these steps leads to take the right decision.
35	Researcher	Yeah, but on a high level what is the main threats for the integration?
36	R3	I don't know, it can be that you have the two different identities. So that one of the two is lost or is not as strong. I mean as I said this like previous examples. These different philosophies that are going to match. So in some way you were going to lose something and it is the risk that losing this part, the part of that will not follow the philosophy. They will lose in I don't know motivation. If we see it from organizational point of view, so they don't feel to be part of the same company. I mean there will be a lot of decisions to be taken. In this case in which as I said that there are different views, it's not always easy to find a compromise, to take a clear way. Otherwise, it's even worse. Maybe it's very confusing not knowing where we are going. I mean they can lose the motivation. They might believe that it is a good way to continue like this example with Outsourcing. If we tell company B tomorrow. Okay. Now we start to outsource some of your key systems. I am pretty sure that a lot of people will think that this will never work. We have always had it in-house. We know how it works, you know this guy maybe decide to leave the company and this kind of situation.
37	Researcher	Pretty much like decision-making overall and organizational culture is the main threats, which you can identify?
38	R3	In some way, yes, culture because in some way this example that I had this driven probably from their culture. Probably they feel more like a Swedish company so they have everything in-house, they use a lot of Swedish and company A was a little bit more international especially in IT.
39	Researcher	Going forward, before going into an merge and acquisition. What kind of pre research did you do for the integration?
40	R3	I don't really know. However, I know what was said in the meetings the meetings with the top management, but what is clearly communicated to all is that we want to be to compete with the competitors and in all in all the areas. Because this part of the fixed product was missing in company, we had it a few years ago, but it was very weak. So it was sold and now we are taking company B that is much stronger what we had to compete with other companies. Now we can compete in all the different areas. To be able to compete with the big players for instance we needed to acquire a company that was already strong in this area. So I think this was what was communicated.

41	Researcher	But in your work, what prior research did you do before like digging into this project? Did you have to do any prior research before you dove into this integration process?
42	R3	It was more or less what they said. I mean, we got to this mandate from commercial side. So it was a to understand what was in the other company in company B and to identify the right persons and resources to talk with and this was actually what we did. Basically we try to say okay. This is what we need to do who we need to involve the to do this. Let's put everyone in one room and let's try to work together. But the point is that in some way we still work as two separate companies. So, okay, you need to fix this part. We need to fix this part how we should we talk with from an organizational in the project point of view and from the technical point of view and let's go in this way. But basically we didn't know exactly what was going on in the details on the company B side and they didn't know what was happening in the company A side. We think yes in this project with R1 I think it had the some different project manager almost so there was one on company A and one a company B responsible of or a delivering because no one on our side who had same details. Okay, we have the problem here or here or there we knew what was working.
43	Researcher	We heard that you had a lot of legacy systems. Do you see that as a problem or benefit?
44	R3	I mean, yes, we have legacy systems that we needed to migrate. We always start this migration with the very ambitious plan. Okay, we dismiss this system in one year, but after the takes a lot of years. It's always more complicated than everyone thinks because these legacy systems are very old. So there is a lot of stuff there that the basically, no one knows about everything that is there so it's very complicated to dismiss functionalities that are not very well documented that you don't know how they work. There is a lot of work every time you need to take away lets say customers products from these assistance. We put in the Target architecture. So it's a problem but everyone knows that it's not an easy solvable problem. On the paper, yes, we need to dismiss but when you start to work you see that it is absolutely not easy. I mean you need to put a lot of effort and there is a lot of the reverse engineering to understand what is there and it's a lot of work. But yes, it's a everyone is aware that it is a problem.
45	Researcher	Are you familiar with the concept of IS due diligence or due diligence, because literature suggests that IS due diligence and the prior research before M&A is one of the most crucial parts and when it comes to IS integration, it's also very crucial for understanding and finding the key motivation and the key factors for successful implementation. So what do you think is the most crucial part of this kind of due diligence. It's like comparing different alternatives like as we talked before doing all the development in-house or outsource it offshore which key motivators. Do you think is most important for an integration in the in the pre-research of it?
46	R3	The key is to put the top management needs to agree on the clearest strategy. Okay, where we want to go whenever this is agreed after all the other actions needed to happen in better direction in my example if the top a management will decide, okay. No, no, but the we will continue with the Outsourcing because we think that this is the future and in the long term this will give us a some benefits because they have seen that the some big companies did I mean it's not a crazy

		idea. So then you need to put in place everything to go in this direction every-where or if they say no in-house works better than the opposite. I mean you need to see what was outsourced what we should do in future. We keep just this part as outsourcer. Then we stop all the other Outsourcing or we… I mean when the strategies are decided after everything? At all the levels it is needed to do some actions to go in that direction. So this comes from the top management, always.
47	Researcher	So more involvement from the top management?
48	R3	I mean it important on all the levels. I mean there are some meetings to which of course we don't participate you know, the board meetings with the investors. It is very high level. They say they discussed they put on the table with probably with the help of the you know, Consultants, you know from all the research that they did. Okay, we have this what should we do when they decide okay this starts to go to level in different ways because of course, we don't need to know every-thing that was behind the decision, but we need to understand what we need to do for each level. So I mean everything starts from the...
49	Researcher	The communication is important?
50	R3	Yes, the communication is very important it needs to be very clear because I said. I don't think that is a clear decision at least is not communicated. I mean in this example that I said because we talk to each other. I mean at the level that we can reach so we'll see what happens. It's very clear that it is different strategy when it comes to IT. That is a very important part but depending on which way we go, as I said in the short terms nothing will happen. But after some time you will start to prepare what will happen after.
51	Researcher	Perfect, and when integrating the different information systems, we have under-stood that there are like 2,000 systems from the merging both sides of the merg-ing companies. How do you try to integrate them? Do you do it partially or do merge them together or do you create a complete new one?
52	R3	Right now the approach was as in some way. We are quite different businesses. So as there is no plan in the short-term situation for instance for a common cus-tomer care system. The idea right now is okay. You keep your systems that are done or to put in place your non-fixed services as they are and we keep of course our assistance for mobile services and we talk with each other when we need to do, so what was done in this project with R1 what we did basically okay we did something common to benefit the systems. I don't know if R1 mentioned to give a benefits to both customers company A and company B based on which services you have. This was built in the middle of the two IT stack, but we built it, it was company A build. The other was basically integrated. So basically for us, okay, you need to provide our fixed service that we sell to company A customers. So basically we communicated to view all the information that you need to enable the fixed services with some new interfaces. And you do all your work basically when you have a done it you come back to me and of course in any case very critical area is the customer support because at the end, okay, we'll be needing two different support lines. I mean and R1 case when company B customers using our services in the B2B is our customers using the company B services, but when they call the support, I mean they call one number so you need to an-swer for everything. So basically there is a quite complex area because the cus-tomer support I take it to a B2B case. Basically they needed to see both our systems and in company B system, they need to be trained on our systems and

		company B systems and this merger that will be extremely complex. It's not the plan that the for now but uh, probably that will be the beginning of the match because that is important. I want a customer call, you know, you have a common systems to give as much info to answer because also with this Legacy we started with that part to move when we took away from the Legacy. Okay, we start to put all the customer together in some way. Even if we don't have all the services.
53	Researcher	So kind of like a coexisting system in the beginning that will be developed into one common.
54	R3	Basically right now we have a two IT stack completely separate with some new systems that was built for the specific new requirements. So it has to be built in any case because interface is talking between the two IT stacks but no real major systems. They have their customer care, we have our customers CRM, and they have their billing system. We have our billing system and the same for all the system that are needed and there is no plan in the short term to merge them. To use one billing system one CRM, but as I said for the support they need to work with everything. It's very complex. So there is probably where we will start to find a common system.
55	Researcher	Perfect going forth, literature mentions that cyber security is a big risk for a successful IS integration. So our question is mainly how do you work to maintain a high level of security during this integration process?
56	R3	I am not very involved in the security but basically everyone use the security. Okay. We needed to open some a firewall to do this kind of Communications. I don't know if it's in the security area, but for us we needed to think about this GDPR, because in this flow going back and forward between two IT stack there are personal information that has some time needed to be moved from one side to the other side. So that we need to understand how to manage because we can not log somewhere we cannot keep it in the middle. There was something more to think about but general security level, everyone needs to keep their security. And as I said, some spatial firewall was opened for this flow but I was not involved in these details. So basically also here there is not a common security strategy right now everyone keep this, it is a strategy. I mean we opened it when we needed but we needed to be careful with this GDPR when we send the data to each other because we are, I think we are both the GDPR compliant in our stack but another other flow going back and forward is the complexity.
57	Researcher	I have one follow-up question. So when you have the two companies with different customer bases. As you said with the GDPR you have to take data from both companies, do you usually merge them all together because it's one company now or do you still keep two databases?
58	R3	We have everything separate everything separate. Probably yes, there will be some plan to do some merge but right now we have to completely separate databases. So if you want to see which is the new company customer base, we have a to query from both sides.
59	Researcher	So in time you might have another system that you need to work with?
60	R3	So our IT stack is target so we needed to migrate all the customer from company B to our IT stack or it depends on how long this will take. If we go to the next CRM system in the target architecture that maybe we'll be using in two to three

		years then when we start with the new system there will be an migration from both sides in the new systems.
61	Researcher	All right. I have one more question because the other interviews spoke about legal problems during the M&A. Do you see that as a problem as well? Did it hinder you from working in the pre-phase? I understand because in this project B2C that R1 worked in and I was involved with at the beginning. Basically we started to work when this merger was not officially approved. So yes, there were some legal issue in some area instead in the project which I start to work in November. That was after this merger was approved. So we didn't have any problem at all because that legally we was already one company. But in that pre-phase, yes, there was some stuff to be careful with, but I was not involved. But we were working with the assumption that the merger would be appropriate because it was a very high probability for it to be approved. Nice. All right, we'll round things up with the last questions. So how would you define a successful information system integration due to time, quality and costs?
62	R3	Yes, of course this can be done in a reasonable time and it's a way of keeping all the main functionality and the characteristics from both companies. I guess time and cost is always the key. So I mean when you say okay we want to merge these companies the obvious questions will be okay, but when and how much this will cost. Request for proposal from different companies will go after this would be a key to see which cost and when it will be done and of course the quality is also important. Okay, these are the minimum, you know things that need to be fulfilled and based on that what would be the cost and the time.
63	Researcher	If you had to choose one of them, which would be?
64	R3	The quality is important because otherwise you need to rework and I mean then you lose on both time and cost. So you can try to define good enough and then just minimum viable product (MVP) is want to call it. That should be quite a good one. That's the base you also cannot say, okay, I don't care about quality but if you're delivering two months and after you need to do to fix stuff for 10 years, so then all the work is useless.
65	Researcher	Is there anything else that you want to add to the interview that you think we have missed, anything we missed asking you or do you have any questions?
66	R3	No I don't think so. I the subject you have chosen is interesting.
67	Researcher	This question is very specific and it's to support our thesis itself. Since we are conducting a case study we need to have additional data to compare and to add to the research itself. Therefore we ask if you have any documentation or some workflow or process that we can use in this species, more like general document nothing confidential, something that could help us.
68	R3	At the level at which I work is not the general, I need to think R1 had something because R1 was involved and i worked more with the details, but if I can think of something and if I find something, but I don't have anything in mind. That is a really generic.
69	Researcher	Last question? Because we when we need to have additional data, this is a table we can send it by mail that you just from one to seven where you prioritize what you think is most important. Is it fine if we send it to you by mail?

70	R3	No problem.
	Researcher	It takes like one minute for you to do. Just rate it from one to seven. And thank you very much for participating!
	R3	No worries, good luck with your thesis!

Appendix 4: Interview transcript for [R4]

Line	Person	Content
1	Researcher	All right. So let's start with the first question. What is your role in the organization?
2	R4	I'm currently operating as a complex venture. This is part of our agile ramp up and basically to describe the role I'm involved in ventures, which are impacting maybe three or more squads or teams. So initiatives that operate cross domains and with a number of teams involved.
3	Researcher	Have you been involved in integrations before. For instance the company C integration?
4	R4	No. This is the first one.
5	Researcher	So the role in the integration processes, what is your role in the process itself?
6	R4	I was operating as... first I was the IT project manager so basically we are working with regular gated model and then we as everyone else we were ramping up and pushing towards agile methods. And this also becomes quite a transition period and also on various levels of the management level want to see it maybe as a gated gate the project. But when you comes down to the operational work and actually conduct an implementation, it kind of transformed into an agile way working so product manager and venture owner and then back to Product Management.
7	Researcher	And how long have you been working with this program? This integration process.
8	R4	We did it for... we started April... I got involved in April I think or maybe in May. And then we released in November and then we proceed and then closed the project. I know a month ago or so and now I'm involved with the core team which is part of the scaling to agile framework. So I'm still involved more like in operational parts as a part of my job. In addition to being the conference room.
9	Researcher	And for how long have you been working at the company here?
10	R4	Yeah I started in November.
11	Researcher	So one and a half year I'd say. Soon one and a half year. And as we spoke about before the integration processes and; how could you divide the integration process into phases which you work with and towards. Can you describe them for us?
12	R4	I'd say, because I got involved when I got involved the process was already ongoing and the majority of the initial time was spent with architects and we had architects from various domains from the company B side and we have architects from the company A side trying to align on how the solution should look like. And in addition, or after that I was kind of breaking down disillusioning to actual

		efforts per domain. So I would say that that being part of the solution work. And then when we had the solution work on an epic level it was kind of down to the teams to. Set up and tried to try to specialize or identify the actual efforts needed and kind of still part of a solution work but then also that was continuous work going on in parallel with the development. But yeah, a major framework set up as the initial part. Then I'd say that the development which was running quite smoothly to the point where you are operating within your teams. But then when you start to build and it is like a drainpipe and everyone is building their part. And then when you want to put it together and pour some water it's not as smooth as you thought it would be. And then you put like an additional one from the company B side and basically Oh! you thought this and you thought that then oh this doesn't work and so on and so the development part was kind of iterative in a way smooth with the teams and iterative. And then of course the testing part a lot of testing also done in parallel with the development, and post that I'd say comes down to handovers and also a lot of change management and getting people to understand because it's a large organizations and some people have been able for years some people don't even know what we're doing because it was started as a secret project. So and now we're in a phase where we actually want to simplify and reduce technical depth and all of that. But from what I'm talking about now is a solution in development testing and then hand over maybe if that's one.
13	Researcher	Perfect and during these different phases, what kind of problems did you encounter?
14	R4	Culture for one just like it becomes very tangible when you operate within it just as simple as an MVP. What is an MVP? Everyone knows what it means but how do you perceive an MVP is it building three out of five things with good quality or is it building the whole thing so you don't have to do any manual input and what is quality and all of that type of stuff. And also culture for one and then I'd say that collaboration between teams really challenging and very tricky. And what was the question of the challenges?
15	Researcher	The problems that you encountered.
16	R4	Mainly say I'd say culture and then I'd say collaboration. But people are quite good in developing. Just like regular development and actually doing the code people managing quite good, also to have cooperation with the people you're used to working with. But when it comes to working with people even within the organization and within domain challenges and then when you take that on a large scale and it becomes messy.
17	Researcher	And which process did you find, or was the most important for the integration itself?
18	R4	Process wise it's kind of because for far as it was quite tricky in the sense that we were changing our process while we were doing this and some people once

		again had a different understanding of what the process was meant to be for me. I think that the process needs to be like, to set the direction and then people need to understand that you have to become flexible within this process and my experience is that sometimes some people tend to hide behind the process. For instance when it comes to tickets. Oh have you created a ticket. No but we have a production problem. Oh but I'm only allowed to operate with tickets but then you have not understand what the ticket is for. In a sense. So when it comes to two important processes I would say flexibility and actually.... but that is not a process in itself...
19	Researcher	But it is what you see as a process. It can absolute absolutely be a process.
20	R4	Then I'd say continuous meetings with an overall objective. So we have for instance we have API sessions, which is like OK so we're doing API. Let's get the right people in the room let's get the simple agenda with five points to talk about let's talk freely about them. What do we know? Be clearly what we what we don't know look into what we don't know then have a follow up meeting next week. That went quite smoothly and also we have taxis going over to the company B office so we where all in the same room and so on. So that I think.
21	Researcher	So communication in some way.
22	R4	Yeah I'd say collaboration. I think it's facilitated collaboration.
23	Researcher	Perfect. And as we told you before there are some critical processes that is identified in the literature. So which do you think is the most critical part of the integration process? So like the most important part of the process, where something can goes wrong and everything's goes to pieces.
24	R4	I'm not sure if that's a process in itself but once again a collaboration How do you collaborate and also how do you communicate. Communication is tricky because we have two companies that use different languages and different ways of using the same tool and so on. Definitions, what is quality? Some aspects are just expected from the other parties. We always let's say test our stuff before we release it from not only a system perspective but also from, I don't know, a integration perspective. And the other part don't for instance then you expect that part to work then it doesn't work. And then hit the timeline, like understanding some things you just take for granted for instance. Yeah, So I'll come back to communication and collaboration and definitions.
25	Researcher	If we talk about like more hands on work tasks and so on which do you think is most crucial for you and in you role?
26	R4	Like operation or what?
27	Researcher	Yeah!
28	R4	What I did. Which also hits me in, I don't know. What also I had to have some meetings about after.... when stuff did no work according to process. I worked around that process a lot, which means that in some cases I have, I had really spent a lot of time with developers himself although the scrum system says that you are not supposed to do that.

		Always go to the Scrum master. But when that didn't work in order to reassure that we've made progress and kept the pace I had to do that, and sometimes I did not. But it became flexible depending on the issues that I experienced. Once again I know that the process is like this and I tried to work with it. But rather than just being persistent with the process, I found a way that worked and had a discussion with regarding what I didn't think worked and then tried to improve that as we went along rather than just really sticking to the process.
29	Researcher	What do you see as threats for an IS integration or risks? Anything special?
30	R4	I think it's a great risk can be... Like when it comes down to... also think it like mandate and who decides stuff because now it feels like everyone should be involved and everyone should decide and everyone should have their say. Some junior are fresh out of school and have this new cool thing that he thinks about and some guys really old school and this doesn't work. And so on. So who actually calls the shots? And also being clear on what we decided and what path you are proceeding with. But once again I think that comes down to how you collaborate and the communication that you have.
31	Researcher	So on a on a low level scale what would you see as the main threats or the main risks because you talking about calling the shots that might be more high level decision making but on a low level. What do you think is the most the biggest threats for the integration itself?
32	R4	One part could be because our side or that you decide is quite the consultant heavy which means that we in some domains have a high rotation of people being involved. And also it's quite like, because the domains are an online domain, and BSS domain, your network domain and so on. So if you're working in the top domain for online and then you're assigned a problem, we need to fix I don't know, this thing here and it doesn't work because the SSN or social security number is 10 digits and you fix it by adding twelve digits because then you fix the problem. But that in itself may have an impact on the BSS system and as a consultant and you go you don't have a chance in the world to know how your changes are impacting other systems. And if you don't have someone who's experienced and have been around for a while to support and guide you that's a really high risk. If you look at company B side and they have people that's been there for longer time than on our side or in some domains at least in general. And it has pros and cons to it of course. But being consultant heavy and having high rotation is definitely a risk on operational level.
33	Researcher	All right. This brings us into the next question. When you're talking about like consultants or hiring like external resources because what literature defines as one of the important processes is to conduct a thorough and like well done due diligence like pre research of how you're going to do the integration itself. So did you do any kind of research before going into the product itself?
34	R4	For me, I was. I was part of I was not there at the beginning. I was thrown in maybe half way through the architectural discussions. And I felt like we spent some time actually trying to define on a high level. But I don't think that we did any nitty gritty work. And when you say that I my feeling was that I really do not agree because I really understand that this is impossible to plan for this on a detail level. I'd say it's impossible if I do this again a rather proceed with kind of like we did trying to draw out the high boxes so everyone can understand even

		if you're a developer if you're a commercial person. And then try to iteratively set up topics and teams. Okay you are doing the API, and then you have the API team and make sure that they can communicate in a simple way make sure they have someone who has experience not only within the development but also within the companies in the room and then work as you go along. Because people are good and you just need to facilitate the collaboration and it's impossible to at high level try to define everything. It will be too many people involved in it would be the wrong people calling the shots.
35	Researcher	All right. So don't think it's a good thing to like paint a picture in the beginning of how you perceive that you're going to do this integration process or?
36	R4	Ido think that on a high level. Okay we're gonna use this CRM system, we're gonna have an API integration that will do this but, I don't think that you should go beyond that then it is down to the teams that work with us on a daily basis and also making sure that they have someone to collaborate with, and then try to not spend any time. You shouldn't even dig into those details let the team do the work I'd say.
37	Researcher	So would you agree that due diligence is not as important as... or is it important to conduct due diligence in an early stage. Or like more of a framework that's should work, like... if you work from this framework that you create in the early stage.
38	R4	I'd say like of course a due diligence I assume can be on various levels. It could be like really detailed and you look into how is the database structured and this and that, and so on and it can also be on quite a high level. So I'd say like OK so if you do the due diligence is this system good? Yeah! Do you have this type of data. Yeah. Good. Then the team will solve it one way or another. You shouldn't proceed in trying to to dig down into the nitty degree.
39	Researcher	Right. So how did you integrate the existing information system during the during the merge? Did you integrate them together partially or did you create a complete new system?
40	R4	And once again it's not my work, it's the architect but what we did is we tried to use as much as possible and trying to keep it as simple as possible. So basically the foundation or the core services are the same as for company A. And then the orders are taken in from the CH side and then we have a new system or a new service. Basically managing the integration and everything goes through that one and over time maybe that will be developed or removed or expanded, I don't know. But it's basically a single point. That is the thing holding it together, and then I know there's maybe two calls that goes outside that because it's much more effective it's simple to just push it. But that's also something that comes along the way when you're having discussions.
41	Researcher	So the previous interviewees spoke about the legal problems. Did they affect you?
42	R4	I wouldn't say that it did it. It did in the sense that if we had created it today maybe we would not have done it in the same way. But how? Based upon the

		premise or the situation that we have or that we were in we have no other way of doing it. And I don't think it's bad because I think they mentioned, and I know the CEO mentioned that which I kind of like that when they did this they had a consultancy named McKinsey, who two times mentioned that this is very ambitious but this cannot be done. It's really good, but it cannot be done. And a benchmark in Europe I think is three months after a merger you were able to launch something to the market. I think that we did it after three days. So bear in mind that this is something that people consider impossible and we beat with quite a big margin and legal requirements. Yeah we could probably done it in a better way now but we managed with the premise that we had. Generate legacy now but let's fix it now because we are in the market generating income.
43	Researcher	So the architects we're talking about the legacy systems as a major problem when integrating the existing systems. Did you find it like, as an as a threat or as a problem to like find a solution?
44	R4	It is a problem in the sense that it things doesn't run smoothly like I mentioned before like if you do a fix in the top domain and it's very static in the end and things might not work. But yeah definitely it's a challenge. I wouldn't say it's a problem because we managed it. We spent a lot of time on it also of course. And but then again it's... I'd say that it's not a problem. The problem is not part of integration it's part of the whole technical solutions. A lot of companies these days are struggling with legacy systems in general because it's modelling things that you don't want to have basically. So it's in that sense it's a problem not a part of the actual integration or like a challenge of integration that you need to manage in some way. And that's also supports the fact that you should keep it as simple as possible.
45	Researcher	Perfect. So the literature mentioned cyber security as one of the main big threats towards successful IS integration. How do you work to maintain a high level of security during the integration phase?
46	R4	No clue. I'd say like I mean since we were using our own systems you kind of just needed to focus on the actual integration part in order to be secure and I feel like we have our devops teams and we have skilled people. So I didn't hear anything about that being a challenge.
47	Researcher	So over to a more like general question. We spoke about it earlier. How do you define success and a successful information system integration in terms of time quality and costs?
48	R4	For me like when I think about it I want to put it at the highest level possible like why did we even do it in the first place. We could have done this over a long period of time and we could have done this with the greatest quality and everything would be so smooth that it would take a lot of a very long time. But for me that wouldn't I don't think that the initiate in the initiator of this integration what it felt like we were creating the value, the value was basically to be able to appear as one and be able to present something new to the market that the analysts and the commercial team think that we would make money from. Because that's why we're here. And in regards to quality I believe that first you have like fundamental quality for instance if you have a phone it's expected to

		be able to call it that's like simple things and but if you generate the wrong SMS when you land in Japan maybe that's something we can live with for a launch and fixed a week after an do on. But in the end of course we should aim to have like zero defects in general but quality I'd say is to have first a fundamental level of the service and then enough not more manual processes then you make a profit from and that you're able to manage and keep our workforce with.
49	Researcher	And you're talking pretty fast so very through the questions. Is there anything else that you would like to add that I think that we've missed in our research or what's something that you find very important in the integration process?
50	R4	I kind of like... because when we did a project, like I mentioned, we started off as a gated one and I made this huge time sheet with like I don't know how many activities and it was mapped and there were teams and dependencies and so on which is good in the sense that you can say is this possible to do or not? does it fit or does it not? So for that it's a good exercise then it's kind of nice to actually track the process and so on but understanding at the same time that this will not be the reality. And some teams would like Okay we're late with this. Don't make a fuss of it. Just keep doing this it directive work kind of like that with the scrum methods and keeping a backlog and what's most important now and stuff change and legal regulations and so on. So having a plan is nice but also I think it comes down to how you work with the plan and try to keep the high level on a high level and then decided to the teams and then tried to facilitate. So you meet and are able to communicate in a good way and also give and give the teams the empowerment to make up their own decisions and so on.
51	Researcher	That was it. Thanks for your time!

Appendix 5: Interview transcript for [R5]

Line	Person	Content
1	R5	To start with I would like to describe which part i have been involved in, I was not a part of the company B integration but mainly a previous one between company A and C. When I was involved in the company C integration I was a part of the business-oriented segment of the integration. So I was not IT a IT-manager back then. Instead I was involved between product development and IT. I joined the IT processes more recently. I suggest that we book a meeting with my head IT architect in the upcoming days since he has been working with the IT architecture of the recent and past integrations. He might bring you some relevant answers to your questions as well. To summarize the main point of the integration, it is important to put the big picture together, I don't have the most experience when it comes to mergers, but in the integration with company C, the most positive part was that two companies was working in the same line of business with the same kind of product portfolio. This means that the IT department has somewhat the same values. Depending on the type of merger the values might vary. In this case we did a mapping over the two companies IT infrastructure and systems to understand which systems had the same capabilities on both sides. Further, we tried to categorize the systems into modern systems, which are store-bought, which are built in-house and match them with the capabilities for all the systems. This was the foundation of this IS integration, to map all the information systems. From this information you can start analysing the specifications to create a strategy. In the case with company C, they had come a long way when it comes to self-service and automation of services. This made the systems from company C more developed which made the integration smoother and simplified the process of choosing how to integrate and to choose with systems to use. If we are looking towards the IT environment regarding desktop services, company A was larger and existed in different countries; this made choosing the right IT infrastructure easier. The same method was used to choose the domain, for instance choosing which supply-chain systems etc. to use. It is often chosen from the larger company. In this case we want to consolidate the finance and HR systems and combine them to one single system for the whole "new" organization. This is some overall principles for the integration. If you are ready you can ask me the questions you have prepared for the interview.
2	Researcher	Perfect, that was a nice introduction. Now we'll start with asking the pre-constructed questions. Please answer the question in your best way possible. What is your role within the organization?
3	R5	At the moment I am an IT manager, I am responsible for the IT part for B2B. I am responsible of an internal organization but we are also dependent on internal and external subcontractors of the IT organization for the consumer or the finance departments information systems. I am responsible for all the B2B when it comes to IT.
4	Researcher	During the company C M&A, what was your role in this integration process?

5	R5	I was working for the business department at the time and was responsible for business, organization and transformation development and worked closely with the product management department. One could say that I was responsible for strategy and IT related questions.
6	Researcher	Since we are interested in the integration process itself, we are going to focus this interview on the company C integration. Literature splits the integration into different phases in an M&A. A pre-phase, a mid-phase and a post-phase. During the pre-phase, did you split the pre-phase into any specific smaller processes?
7	R5	We did not split the processes into those kind of phases, but we had an on-going process for the day one release. Further, we did not split that work into different steps. Of course there was a part in the bidding-phase, between the bidding and getting a accept on the bid. In this phase we were able to get our hands on some material, of course restricted until the bidding was done. However, there are still some problematic since we can not get on hold with all the documentation needed for the IS integration.
8	Researcher	Did you encounter any problems during this and the upcoming phases?
9	R5	The big question was the lack of information and the restricted access to key persons to ask questions to. In this case we were only a few persons from the IT department that could work with the processes and we had restrictions since we all signed an NDA. We were restricted since we could not access all the material and we could not get all the answer we wanted to our questions. We had access to a few system sketches over what the systems were capable of on a very high level. However, it is hard to get at good picture of the IS during this bidding phase. It is just like I mentioned earlier, you can get a feeling over which systems are store bought and what is built on-house. You can get an understanding over what the systems are capable of and if there are any similar systems of what we already have or if there are any systems that we don't have at the moment. You need to build everything you do upon assumptions in this bidding-phase.
10	Researcher	Would you define this IS preparation work as the most important part of the bidding phase?
11	R5	From a technological perspective, it is important to create a well-defined mapping as possible and finding possibilities. This can be to identify if there are better systems in the other organization compared to what we have in-house or if they have an unstructured IT-stack with many old systems. It is all about to get a comprehension over the values for the organization itself. However, for the IT part, it is almost never about the values but to decrease the risks. In our line of business there is often very old IS that needs to be integrated. It is therefor hard to identify opportunities for IS integration, instead it is all about not having too much "technical trash".
12	Researcher	Previous respondents has all mentioned Legacy systems as problematic, what is your opinion on legacy systems?
13	R5	I think that there are a few specific lines of business where there are more legacy systems and ours and finance is two with the most legacy systems. It has to do with many factors, historically our line of business have not had IS as main focus. Focus have been on our infrastructure instead. However, it is a fast growing

		business and we have hired many people to different segments in the last couple of years. Because of the fast growing market we have built together many smaller systems and it makes it problematic. Unfortunately the focus has not been on improving the IS infrastructure, in the last 5-10 years the focus has shifted and the competition has increased. Today our focus is more angled towards IS usability. Other businesses which has focused on digital services and usability has an advantage. It you compare with Netflix and Spotify they can focus more on usability. Our line of business has in the last couple of years identified this area as more important. The pressure for self-service forces us to focus more resources on usability. The old system makes it hard for us to keep up with the pace and it is time-consuming. It is a challenge with the legacy systems but if you look what Gartner says, our line of work is facing a intensive period where it is all about finding our way out from all old legacy to focus on new products and business models.
14	Researcher	What risks can you identify for information system integration?
15	R5	If you look at one of the great risks we were facing in the integration is that there are a lot of in-house developed systems and there is a strength in that on the market. It is an advantage. However, the downside of this is that you become very dependent on specific individuals. The great risk is that some individuals is very important in this kind of M&A since organizations is cutting down person-nel during a merger. An M&A put pressure on the employees and some kind of uncertainty. This forces competent employees to perhaps looking for other op-portunities due to the uncertainty. As I said, one of the great risks from an IT perspective is the loss of key employees. It is one of the primary risks. Another great risk is about how fast you can control all the IT stacks that will pop up. Then you need to find a new target architecture and you need to create new road maps fast since this is a matter of cost. Have duplicate systems is ex-pensive and it complicates the business part of the organization since you have to use two systems at the same time. In terms of this you also need duplicate support flows that can assist employees with both systems and that calls for more internal education. It is expensive. What you need to do is decide you targets to migrate the IS. From a cost per-spective this is critical for the integration. There has been a focus on integration and not on product development. This brings risk to the table on a competitive level since competitors sees an opportunity to advance when we are occupied with the integration of the two companies. During this time the competitors know that we are not as flexible and tries to find new customers with new offers. Un-fortunately we can not keep up with the pace since we need to focus on the inte-gration.
16	Researcher	What do you think about the organizational culture during the fusion of two companies?
17	R5	That is an exciting question; this is similar to what I answer in the previous ques-tion with important employees… One anecdote from the company C integration is that you should not… Company A is a very high pace organisation and stuff needs to happen fast. In this case we underestimated the time it takes to integrate the companies. The positive thing in this case was that everyone was hyped for the acquisition, the cooperation worked well since everyone wanted to work to-gether. The problem was that during the journey we found that the organizations

		are pretty different and both organizations think differently in different questions. We thought that everything would be back to normal in around 3 month. However, it took almost one year before we came to the conclusion that we are thinking differently. We were blinded during the first few months. We thought that we were thinking in the same way but we were pretty different when it comes to organizational culture. The collaboration worked smoothly for almost a year but then we saw that we think differently. This was the start of some kind of one-year crisis. We put much effort in change management and culture during the first weeks and months, and then we stopped working with these questions since we thought we were done. When we look back today we can see that we should have kept the work up for a few more months. It is a challenge, there is no silver bullet in this case, it is all dependent on the circumstances. In the case of IS, we used a lot of the existing infrastructure from company C. The whole IT department is from this company C. The majority of the new IT department has moved towards the company A culture. I still urge that we, two years after the acquisition still work with the cultural differences. In this case, approximately 90% of the employees come from company C. In other integrations it is more like 50/50, this shows the importance of working with culture. To summarize what I said, you should not underestimate the cultural aspect and the time it takes, it takes a lot of time before you understand the similarities and differences. You need to be agile and have a program that stretches a long time forward. This is one of the mistakes that we made during the company C integration, not allocating enough resources and presuming everything will run smoothly.
18	Researcher	If we're to talk about, before the purchase of company C. Did you did any kind of pre research? And what kind of pre research did you do for a successful integration?
19	R5	I was not a part of the first part of the M&A. However, in regular cases you always start by looking into the business opportunities and in this process only a handful of people was involved. And in time the team grew bigger and bigger. I became involved after a few months when the evaluation was done on a high level. Further it becomes more detailed when you look into the product portfolio and the technical components of the two companies. As we spoke of before, what kind of possibilities is there in this integration on the technical side? In this case company C did not have their own telecom network while we had. We identified a lot of cost saving in this matter since we could integrate all customers to our own network and cut down costs. On the IT side on the other hand we could see possibilities since company C had many system components that we did not have. It was more about finding threats such as duplicate systems, such as finance systems and HR systems. In general terms, it is not all synergies what you are looking for on the technical side, but to minimize complexity and minimize the risks as much as possible. This is what is important in the pre-phase, to with the information you can use make an estimate over how big the cost might get if we are to live with existing systems and how much do we have to spend to combine them to one system? It is all about estimating on that level but we succeeded to with the work with the resources we had. It is always a give and take situation. Firstly you have to make your assumptions and later you find that it is too expensive for the business to look good, later you need to think creatively to break down smart solutions and in the end you end up thinking that this is somehow in between with risks and opportunities. In this case we completed this phase pretty well. Thing always

		take longer than you think because of external factors and the internal factors for the integration itself. An integration takes about 2-3 years to complete. The specifications you had when entering this case is changing over time, so there is somehow moving aspects of the processes that you can not control during the integration. These are always hard to parry. Once again it is important not to get lost in the details but to find the solutions for all the somewhat 500 different systems. There is perhaps 10 of these systems that are very expensive and the big problem is to integrate these systems. One important part here is to categorize the different aspects and to find the important IT-stacks and to identify the problematic systems and the ones with high complexity. There are also many small "shitty" systems that we don't really want, however, they don't cost as much to maintain. Therefore we don't prioritize them as much as the larger more expensive ones. You need to sort all these parts so that nothing is missing. The risk here is that you are everywhere and you might miss something important.
20	Researcher	The systems you are mentioning, what did you do to merge them. Did you combine all of them, did you split them or did you create new systems?
21	R5	For the majority of the systems we have tried to consolidate and we have pointed out the targeting systems and then we created a migration activity of them from the old one to the new. We have done the same thing for the majority of all different integrations involved in this M&A. This creates a gap, the new systems do not have all the functionalities you need. Firstly you need to identify the gap and then you need to choose if you should develop new ones to fill the gap or do we create a simplification to throw away the functions we don't need. The important thing you need to know when looking at the literature is to, cut down the legacy as much as possible and to work a lot with simplification to the more time you spend cleaning before the integration, the faster it migration goes. In addition to this you can start with product development after the migration. It is also hard to choose since you have a lot of revenue that comes from specific functions. Now I can see that one of the areas where we put in a lot of time and effort during the migration was on our own inventory systems. e.g. all the infrastructure, we created a big migration but it was of very bad quality which has made created a lot of unnecessary data cleaning. Perhaps it would have been better to look at previous M&As where a layer has been built upon the already existing IT systems. All the systems have got a new interface, which works towards the different old legacy systems. This is one approach that where we should have focused on the inventory cases. It is hard to know on forehand which way is the best.
22	Researcher	During the merger of in this case, legal restrictions have been a problem and you cannot talk between the two companies. Has this been a problem during the integration?
23	R5	Yes, there are two different laws that complicate things, the first one is called "stand still" and the other one is called… I don't remember what it is called. However, you need to remember that you cannot share information with each other. Primary it is financial and product information, road maps this kind of information. From a technical perspective, when you look at the different systems you have, the system stack. It is possible to share a bit of information without showing too

		much secrets. From a technological perspective, it has not been a very big problem. The hard thing is that you cannot talk about the collaboration of the systems and the choices of the systems. You can create a pretty useful mapping over what there are on both sides. What are the opportunities and disadvantages but it is hard to look into road maps. You need to be careful with that. However, you can make some assumptions. It is not as big of a threat from an IT perspective compared to a financial one. It is more about if you need a deeper understanding you need to get your hands on the key employees. This is often on a very high level. Therefor you don't have access to any detailed information. But more on a general level. This is one of the challenges if you're looking for what kind of API you need, how many transactions are there that is flowing between the different systems. That information is hard to get during this phase. You get find the information regarding if the systems are built in-house or store-bought, the different strength and weaknesses of them. How many are duplicates and so on. This is easy to get your hands on. From an IT perspective it is manageable. What you don't know is the cost of combing or re-constructs the systems since you cannot discuss it in detail and understand how the systems are built.
24	Researcher	If we are going forth to cyber security, the literature is finding this as one of the biggest threats for a successful integration. How did you work with cyber security to keep a high level of security?
25	R5	Well, to be honest, in this case, it was not as relevant then as it is now. It was four years ago when this merge went through. Cyber security is a hot topic right now especially after the introduction of GDPR but it was not too much focus on the cyber security and digital trust when we made this. Of course we have many important customers of which we cannot share with anyone. This is one of the secrets; we cannot share our customer register. However, both of the companies have a customer that they need to protect that needs extra security measures. But of course we looked over the security capabilities of our existing systems du did not dive deeper in these questions. Instead we assumed that we have some customer that needs to be protected and a lot of large municipalities and they are happy customers. We also want to protect them since we have won large procurements that we know were hard, it was a recite that we have been working with security and security questions. We were very comfortable with the security thinking was already deep into our organization. However, it is hard to, once again to work with the details.
26	Researcher	Lets start with the last questions. How would you define a successful integration in terms of time, cost and quality?
27	R5	The destination is one perspective itself, the business case you put up for the integration is important for the measures of a successful integration. It is also here we are measured with our competitors. First and foremost, the external expectations are somehow a measurement on a successful integration. If we looking at the learning from previous M&As, the business cases and the reality is not always connected with each other. From these learnings we have found many synergies from the previous M&A. You often reduce the employee force before the integration is completed, it is not only real life synergies but also combining processes and systems to make it easier for the organization. You pick different employees to lower the work force in terms of this you prove the synergies of the business case. The downside of

		this is that you are strangling the organization since the integration takes longer time to complete when you erase the synergies in an early stage you don't have the personnel that can work through the integration. In terms of this the organization will suffer longer and we have used this as knowledge in this integration, to find a balance in between. The external perspective for a successful integration is to live up to the expectations and the business cases. The internal perspective for a successful integration is when you analyse co-worker evaluations. How satisfied are all the employees. Is here a high amount of stress? Do you think that you have reached a common culture? This you can identify early in the integration but you have a long way until it is finished. Even if you look at the external perspective. It is important to find a balance in between and that is hard. I think that our company has a positive mindset but you should not be naïve. You need to make tough decisions. I think that we might have missed to make some of the hard decisions. One could say that we have not made many sacrifices at the time. We held it together quite nicely at the same time you have the integration to conduct. We have some experience from earlier integrations. During another integration the process was very strict against the costumers and told them that they were occupied with another integration at the time. Unfortunately all costumers has understand the problematics, an integration might have on them. Because firstly we need to integrate the companies, after that process is complete we can start focusing on the costumers. This case is not similar to our merging processes. We always prioritize our costumers. The problem with always focusing on the costumers is that it puts a lot of pressure on us and our systems e.g. the integration of the information system is not yet completed. The short answer for a successful integration is the external business cases and expectations. The most important internal factors are co-worker evaluations and the engagement among employees, the common and new culture and is the stress level lowered. This is a good measurement for a successful integration.
28	Researcher	Do you think that we have missed any specific and important factors in our research? Something that you find very important?
29	R5	No really, I have given you pretty broad answers you should really try to get an interview with one of my colleague. He is very good at describing the integration from an IT perspective and how you can analyse it from that perspective. I have tried to give you a product and IT perspective. I think that your questions are relevant, some questions are somewhat specific such as digital trust and cyber security. However it still fit the research and where we are right now in 2019. It would be very exiting to read the final paper, so if you would like to send it to me when you are done.
30	Researcher	Of course, we will send it to all the participants after we are done.
31	R5	Which are the other persons you are going to interview? I can help you and connect you with some other people from the IT department.
32	Researcher	The next interview is with one of your colleagues who is head of architecture and planning. We have interviewed the following, a project leader, one solution architect and a few more.

33	Researcher	We have interviewed a vast variety of people from both the IT and the organizational part of the company.
34	R5	Alright, a few of the ones you mention is very hands on in the integration. The head of architecture and planning is the perfect person for this research; he has many years of experience. You will get very good answers from him. Perhaps you should try to interview someone else from his team. A few of the people you have interview are more detail-oriented in the merger itself. If you should investigate some other areas as an IT domain perhaps you should dive in there. One thing that comes to mind is that you should perhaps investigate financial and HR systems. I don't think that you have dived into that. Perhaps you should find a person that knows how to work with that kind of systems because it does not matter which line of business you are working in since in these systems the processes are pretty similar. It depends if you want some further depth in the research or not.
35	Researcher	It feels like we have gotten a pretty good big picture of the integration process. With the hands on and architecture perspective. This is the area we want to investigate, the critical processes and compare it with the literature because it feels like the literature suggests areas of the integration that is not as important compared to this real life case. Cyber security is according to the literature extremely important and time consuming while this case shows that it does take as much time and it is managed by it self. But of course it depends of which line of business you are working in.
36	R5	As you mention, it is all depending on the line of business. In ours it is very important that you are accommodating the laws and guidelines. If it is a well-established company you have competence in-house and it is more about how you are merging the different departments instead of creating a thorough work in the cyber security area.
37	Researcher	Thank you for participating, you really gave us important and useful input and examples.
38	R5	If you have any further questions, just sent me an e-mail. It is always differences between literature and the real life. However, it is situation based on how you are tackling the situations. You need to create the tools you need in each and every situation. It is possible to generalize general approaches and the other persons you are going to interview might help you in this matter. You need understand how to create a plan and how do you create an inventory. You need to use this in the evaluation of the architecture. But this limits you since you can not do anything practical until the transaction is completed. We did conducted a target architecture where we tried to conduct a plan of what to do in the first 100 days of the interaction involving road maps. It is possible to generalize and create some kind of blue print or road map, a checklist over what you need to do. It all depends on which line of business, the age of the company, is it large company buying a small one or a small one getting bought by a large one, perhaps they are equal. There are many parameters but you need a toolbox to emerge from.
39	Researcher	There is perhaps one more thing that we will need help with. We need secondary data, therefore we will create a priority form where you rate the different parts of the integration from 1-8. It will take around 30 seconds to complete. We will email you it next week.

40	R5	Alright, no problem! Another thing I thought about, a question from me, on design principle is to think about how much you are doing yourself or should be hire external help. In our recent integrations we have chosen to create a lot of things ourselves with the in-house personnel. Is this the right way to go or should we have done it differently? Should you do the integration on top of the existing organisation? This is some design principle, company B chose to use their internal resources for good or bad. You have the competence in-house and the employees feel involved. The downside is that you can not do much else. This is the part where you need to make tough decisions. It is a design question that might be interesting to investigate how other companies have made their decisions. How much has been done internally and externally during the technical integration.
41	Researcher	Awesome, we will take that last bit with us for the research itself. Once again, thank you for participating and taking the time for this interview.
42	R5	Good luck guys, bye!

Appendix 6: Interview transcript for [R6]

Line	Person	Content
1	Researcher	What is you role within the organisation today?
2	R6	It is called head of architecture and transformation.
3	Researcher	Okay! Have u been apart of integrations earlier? For example company C.
4	R6	No, I have been apart of some larger integration. It was a which was at least 10 times the size, of the fusion. I was part of the IT board of direction, during that one. Then I was a part of "Company name", where I also was a part of the IT board. During the first, was I pretty young, and was more just there, and during the other I planned the entire IT integration.
5	Researcher	Okay! Can you please tell us what you did in the Integration process, I mean in your role?
6	R6	Yes… I don't know which one I should choose? Should I take the current one?
7	Researcher	Yes, that is good!
8	R6	My role here was to plan the goals of the IT landscape. So everything that… during the short and long terms had clear goals, and that we divided the tasks… what was going to happened in the middle and…. Connected to the IT landscape, there was…

The first one… Storm the gate, from Day 1. That one was auto scope. More like, we need to figure out what to do there. It was a problem; we could not work as one company legally. We had to act like we were two different companies that formed a partnership. It could be between any companies. It could be between "Company name" and "Company name". That part was out of scope. But the goals were to when we could work as one organisation. |
9	Researcher	Yeah! So, how long have you been working here at company A?
10	R6	I have been here for two years.
11	Researcher	Two years?
12	R6	Yes!
13	Researcher	As we mentioned earlier, we have chosen to focus on the different phases. And we would like to know how you have been working with the different phases, and if you have chosen to divide the different phases. If so please describe them.
14	R6	Compared to the two other mergers I have been involved with, was this one more unstructured. Everyone started to work right away. A lot of work started and company A got a action oriented culture, so it did not felt like it was a lot of planning behind it. Instead, they formed streams; no one had an overview over all the existing streams. Here it also work like this, that we had to sign an NDA

		agreement, that you shouldn't share information. I know more hindsight, oh… did we do like that as well? It was a few in the top that hold it all together, and they were outside of the IT.
15	Researcher	But, how did you choose to work with the integration within the IT department?
16	R6	We… well, as I wrote on the whiteboard here, there were several streams, and they were all separate and was holding together by the two CIOs. company A had a CIO and company B had a CIO. They had a, they had their own core team which held everything together. Previously did we form a board of direction, a little bigger group with maybe 6 or 7 persons? But this time it was only the two CIOs and a external consultant which was the project manager, but she is not here anymore.

But… what I know now afterwards… Okay, It was an infrastructure stream, a project manager "name"... a consultant, it was a way of working stream… and one in my team got that mission. But she had to write an NDA, so I as a manager, could not know what she did. I just knew that she was working with it. After that we started to form our agile working processes.
Then we had our target architecture, and then we had all our business streams, formed after our business goals. The finance, had to be formed pretty early, and then we had IT professionals involved in these… resources, leading resources. |
17	Researcher	So in these processes…. What problems… or… appeared during this time? What kind of larger problems?
18	R6	Compared to previous fusions. I thought… I think culture wise we were pretty similar, or was it the persons involved which was similar. It was fewer problems compared to what I have seen in other fusions. Also the distances were not that hard. "Place one" and "Place 2"... compare it to like Manchester - Södertäljer, or Köpenhamn - Stockholm. We haven't had a lot of problems… I believe. Few practical problems but also cultural, that we could not work together really well. One problem was that it was hard to get an overall view. That part I got, how does it fit with the others part? What kind of other parts are they? Especially because we should… we should create a target for the entire IT landscape, all the systems, something like 1400 systems… between the two organisations. What is going to happen with all of them? Well, that was our task, to plan that.
19	Researcher	We spoke to "Name"... and he told us about the Gate structure, Gate 1-5. Is this something you worked with in the IT department as well?
20	R6	Well, that's a project model. They probably agreed upon…. What kind of project model should we have? At the same time are we heading towards agile working methods, so we are phasing out project models, and we should not work with project models, instead we should have independent agile teams.
But "Storm the gate" did they run like a project. That part, that part is almost like…. It is almost like it should not be called a merger project. We could have collaboration between company B and a competitor... It happens in the same way. It is two independent organisations forming a partnership and company B and the competitor had a special offer together. But that offer was through the competitor. But with "Storm the gate" did they change place with the competitor and company A. It is hard to call it a merger program….

21	Researcher	Yeah, we understand! But what part of this integration process did you believe was the absolute most important, in your role and for the company? Or for the entire integration?
22	R6	We came up with… a model of the company, which was…built business capabilities. So we knew, what capabilities in the organisations do company A have? What capabilities does company B have? We agreed upon… it was to break down the elephant… one unified company.. What does that company do? Well we are doing… we have channels, we have our products, we have…. We have an architecture model, a business architecture model. And then we worked through one and each of the capabilities within the billing area, what kind of solutions do we have within each company.

Within company B… it was more.. It was a company with simpler products, and… in Sweden… and focused on consumers. company A was straggly, with many countries, focusing both on consumers and B2B, and pretty standalone brand. company A maybe have 5 IT stacks, 5 duplicated… all they do, traditionally 5… something with 5. And company B had more like 1 solution, more internal development. company A bought a lot from the market. So it is about matching them together, to have one common goal. |
| 23 | Researcher | In this integration is it important to find the crucial factors, so it will be a good result. So what do you think is the most important part so the integration will be as painless as possible? |
| 24 | R6 | For us was it…. Synergies, what have we promised for synergies to the market? How… what kind of saving has to be done to fulfil the goal? Then… the sort…. The goals with the... Business goals with the integration, which was hard to find actually, and what we are heading towards? Okay… We are going to be an FMC, we are going to have mutual offer, where customers… a wider part of our portfolio, which makes it less… which means not losing customers, they are becoming more loyal, staying…. And.... that was really clear. Beyond that… was it little hard to… but we managed to understand that we should aim at households instead of individuals. That Sweden was the most important because company A had all those countries and Balticum was more successful, and profitable, and so… But Sweden was a big part of the revenue, but the other countries are more profitable. But with this fusion it was going to become a Swedish company, with a focus on the Swedish parts. And… affectivity in the user interface and more unified customer service and so… I am thinking….
And then some important goals, which is important for a new company, but they are coming later… example with the 5G rollout. And it was large driving forces were we had to sort out where we needed the biggest effects and when. And then we did an approach with the help of this ability model, divided in abilities… Finance, HR, supply chain, to simplify a lot and have one solution instead of the overall duplication. In the digital company A is it much more mature, and you can reuse much more… plus it is an investment area… and… So it was never a question about synergies, but more about if it is possible to reuse… and get a wider usage of what company A came up with. In our business systems, which are in telecom, CRM, Billing, Order product management, do we work a lot with background… what is our goal with it? It is important to hold everything together and so they not just become duplicates of everything. But there did we come up with… okay… we need some sort of green field, so none of the organisation have what is supporting the long term goals, example FMC… So we need to buy |

		software or develop it on our on. Network… in telecom are network the manufacturer… and… well, in terms of FMC, it is important to make it one service for the costumer. There was quite a mix… the first step to get it together was to take away duplicated solutions, but also to add new… So we started in that end, the strategic goals… what does it mean for different parts of the organisation, different merger approaches for different parts, then when we speak about the different parts, we had to go in on the system level, so we came up with a list about what should happen with each systems. I said 1400, but it is if you count with all countries. It is only 500 that affected the merger itself. And the 500 was… should we… what should happen in mid-term? What should happen in long-term? What should happen after everything? Long-term had we… mid-term was in 18 month. Long-term was 18 month until 3 years. After that are you in Business as usual. Some things was not possible to finishes within 3 years, so… So each system should be killed, or should be invested in because it is a target, or should it be divided because there are to much in baked in one homemade system. Example if you need to refine it.
25	Researcher	Good! And then of course there are threats and risks…. What are the threats and risks towards and successful integration?
26	R6	Well… in our stream did we not work with risks? Nope, I was thinking…
27	R6	(the recording died for 1 minute) ...in, you have to write an NDA. And it happen to be an architecture in my team, which was… this name "name", he was the one involved from the beginning. He was the only one from IT involved… we had 5 big transactions on-going, the disposal of the Netherlands, Austria, this potential integration. And then it was two more things that did not ended up being anything. I am still not aware of what it was… 2 big transactions. And once again was the one involved in… a lot of these. And he was not allowed to tell his manager. And… Even though, do I know what they did for king of due diligence, before the transaction. And they had pretty good knowledge of the economics, but also and over all knowledge of the IT in each organisation. But this did not go through to the next phase, at least not through me. We had to start from scratch. To read and learn what you needed external… there's a lot of annual reports and so on… and what they want to share us when we are meeting.
28	Researcher	Were you involved in this due diligence phase?
29	R6	No, I was the manager of the part of the IT department that was involved, but I...
30	Researcher	Was not allowed to participate?
31	R6	Yeah! Strangely, that is how company A works. Your signing project based NDAs, which make the involved participants… then there are some legal stuff as well. Depending on… some of the employees involved in one phase gets disqualified to enter other phases. On top of that was "NAME" on parental leave…. We spoke a little bit about that… it was obscurely what he was allowed to share.
32	Researcher	But in you previous projects. Have you been part of this phase before?
33	R6	Yes, in… if we take Postnord for example. Where I was in the first… a huge different there was that you had a polite collaboration in a small group is was involved with, before the merger was approved, before it was done. When it was

		approved, the board of direction was appointed right away. So it was clear who was going to be CIO. Then the other dropped of, and you did a plan of the merger with an clear… leader who was responsible for everything. And not all this secrecy… Her we worked in a much earlier phase, but it was not clear: who is going to be responsible for these things. And all the time the colla-borations...
34	Researcher	What was the most important in this… to plan the entire integration?
	R6	Once again… Some of the questions you should ask the CIOs, the two CIOs that were involved. And they were the only one that had the overall picture. But, what you are promising the market is the most important. To fulfil the promises, the synergises for example. And to identify where to find them. We did that, for example with the Domain model, with capabilities… where we said: Okay! Here are there no possible savings to make, but here are there and there are there.
35	Researcher	So the laws and legislations you earlier mentioned: How did they affect you and your work?
36	R6	Well… what I was thinking about… there are two similar companies. There are not so many additions, nothing new. There was the GDPR regulation, for exam-ple. But, that one does just one have to maintain. Then there are some parts within Telecom that each part have to fulfil anyway. It was more a question about what we were allowed to do together. How much were we allowed to share be-fore the transaction was done? I believe… they wanted to start early with the planning of the fusion, even though it was 50-50 if the merger was going to hap-pen. In the same time, if the merger would not happen, we would have been competitors. So, I think that affected it the most, the secrecy. At the same time we had to plan without an overall picture.
37	Researcher	You, who has been apart of previous integrations. The legacy systems have our previous interviewees mentioned a lot. What do you think about having legacy systems?
38	R6	How do you mean legacy systems?
39	Researcher	The old systems that have been around since the 70s. Do you see positively on having old systems that could be hard to work with or do you see it as something negative?
40	R6	As I said, we went through everything, the entire list. We did an assessment… if there was something from our own perspective that we would like to change or modify, and then we merged everything and went through it to see what our target system and target list should look like. So some legacy systems could be good, going strong, not worth spending money on to dismantle. We chose an direction for each systems. It was based on, what… the role for the system in the future. Would it be able to handle the future? If not we had to change it. And both company A and company B do not have really, really old systems. We don't have like the banks which have a whole IT part with computers… let's say in our digital dimension, in company A… everything is new since 3 years ago. In other areas can they be between 5-8 years old. Nothing is older than that.

41	Researcher	Okay! So you did some sort of priority list? Which was the most important system to enable or get going right away, and did you order… the planning phase - how you should integrate them?
42	R6	As I told, in the Finance, we have to go towards one. We have to chose, we have to change and… It was not… We, we were pretty fast to decide where it was important to merge to one. And that it was good to have different. It is important to know that the value lays in company A's brands, and that the brands have developed their own products to their own customers. So, it depends on how the company will continue to operate. Are they willing to keep adding money towards the brands or is it okay if they should have different systems… it is working like that in a quite large range. In the ERP-area was it obvious that we needed a unified infrastructure, unified Support for the network… and so on.
43	Researcher	Okay! The literature also mentions the security aspect as an important part of the entire integration. How are you working to continue to have a high security within the systems and the integration?
44	R6	Well… that can I say. The big amount of systems… You can see on money spent on IT for example. ERP, which had to go towards one unified system fast. It is not the big money within telecom. The big money is within the billing systems and CRM systems, and I some amount in the digital UI. The two different organisations works perfectly without integrating the systems, because the brands are relatively freestanding. So, as long we sell the company B brand will it continue to work even if it is one company? So it was nothing acutely to integrate. However, it would be costly to not get the synergize towards the market.
45	Researcher	Was it something you discussed during the integration: how do we need to work to not leak… or maintain the security?
46	R6	The things you are not changing will be unchanged. Yes, we had security aspects but the requirements… they are unchanged. We did not perceive any new big security requirements to fulfil.
47	Researcher	If we should head over to the last question. What do you define as successful information system integration, a successful integration, seen through Time, Costs and Quality? It is a quite philosophical question.
48	R6	To begin with, you need to achieve the goals with the integration. Why do we merger? In this case we have promised synergies. And it is important to hold these promises. And then, that we should be an FMC, to be able to offer the market combination offers. So our goal, needed the support to be an FMC. And we need to take away the duplicity because otherwise we would not get any synergies.

It was a separate stream around "way of working". Seen through it, the real integration begins when we move together. So, we close the office "Name of street" and people move here, and we should have more… to work in a more common way. Something's have we not started with yet. That I believe is an important factor to be able to make this one company. Because a lot is still two different companies.
And I remember you asked about complications. Scope, you handle IT in different ways. More internal developing in company B, and a mix of internal and |

		external in company A. It was even so… if something was really important company B would buy it, but if it was half importance did they think it was cheaper to develop it internally. While company A had the philosophy: what is strategically can be internally developed, otherwise it can be bought. If it is commodity. So here was it a different. Also that they divided IT differently. So finance IT was a part of the finance department, but finance IT in company A was a part of the IT department. So it was plenty of functions that had to collaborate in this… This… network IT was a part of network. So company B IT was a subset of company A's IT.
49	Researcher	Okay, okay!
50	R6	So company A's CIO had all IT, and company B IT was divided. So Finance, because they had their own IT, they had bought it as a service. So it was a mix… Our client for example was a BPO. company B had no personnel, instead rented that service, and in the same time did company A have… So only to understand what you deliver and… ah, okay! What model refers to, not only system, but model. And how should it be sourced? company A did outsourced a lot. And company B believes it is cheaper to do it by their own.
51	Researcher	How did it end up during the merger, seen thought how it will look in the future?
52	R6	Yet, we haven't changed the sourcing mix. It is outsourced, and it lays down outsourced… and company B… with insourced, so…
53	Researcher	Okay! Last question. Is there anything you believe we need to add or something we have missed in this research… or in this interview?
54	R6	well, when I saw the list with name did I think that it was most solution architects, that had worked with relatively small scope, or a specific task. A person like the CIO or "name" would have had a wider perspective, where I am just a part of it. I know INFRA, which was important to work early though the process. To be able to get hold of information and prerequisites so the company works, communication between employees and so on. I believe you haven't thought about that part. An entire new track. Then I think way of working is important. It appears continuously. Organisation and way of working...
55	Researcher	No, not really. The literature says that the CIO should be involved in a board of direction, in the top of all tree streams? (Pointing at the whiteboard).
56	R6	One of the CIO's "Name" reported down one-step top the next group. In the new board of direction did "name" move up and was a part of the company board of direction. So, in that way do I think he had to put some effort into it, to be able to join all the parts. I worked with a guy named "name", and then I had my team… we had architects joining each integration stream, all we could find. Then we had a cross-stream architect, for coordination and get the target. Without being able to have control over everything.... Every time we got knowledge of something was an architect joining. But no one of them is on your list. But they were working with the target, the target architecture.
57	Researcher	We have to contact more interviews.

58	R6	Now I remember something that could be of importance. In our work did we hire Gartner, an analytic company, and we used Gartner consulting. So they validated everything we did. They did not give advice, but the thing we created… did we have workshops with them and got a second opinion. So we had a best practice, and got to know how other companies within the business does. In this area are you weak, why are you thinking like this…
59	Researcher	This is good to know. Because we know McKinsey was involved as well.
60	R6	Yes, they were involved on an organisational level. And we chose to… they have also done some sort of benchmark. Now we chose Gartner for… the target for the IT landscape. Because we already had McKinsey information. And we have done previous benchmark with a company named "company name".
		What's happen in a merger, in all three I have been is that the CEO gets the information about the state of the nation so to say for each part, including IT. Then McKinsey, IBM, and some others, are going on CEO level and says that they can do it much better, and that our internal IT department never will be able to handle it.
		We saw it as something that we should do and that we could do this integration. Both on short… and especially on long term. It will be the next 3 years that this will be on-going. And… so I think they knowingly did not choose McKinsey, because it would be a double role somehow. It happens that the CEO says: I don't trust my IT, I take this external partner instead, pays them a lot of money and letting them taking care of the integration.
61	Researcher	It's the same with one of the precious interviewees named "name". He said: that the external parts are usually the problems, because then they start to work without the knowledge of the current systems, the legacy systems and how to use them. So the external partners have a longer starting phase to learn about the already existing IT. So they later can be experts...
62	R6	They have a tendency to offer a whole green field. Then we are talking about an integration investment worth billions.
63	Researcher	With an entire new green field, it is a new infrastructure as well?
64	R6	Yes. New systems...
65	Researcher	Fresh from the start!
66	R6	We chose… or the CEO chose, to not use any money here and instead finance the integration with the saving done over short-term so we could transform over a longer period. So the other fusions did promise a lot of synergies, but also sat of a lot of money to be able to finance these synergies. Here, did we promise synergies but did not set of any money…
67	Researcher	Okay… We got nothing else to ask. Do you have anything you want to ask us?
68	R6	No, nothing special.
69	Researcher	Thanks a lot for your time!

Appendix 7: Interview transcript for [R7]

Line	Person	Content
1	Researcher	Hello. Then we begin with the first question which is: what is your role within the organization right now?
2	R7	Okay, I am a technical product manager for company A residential and company B mobile and the... Usually, I mean in the companies there is one product manager that is like owning one product or a set of products. But in the telecom companies... since they are very complex. The Product Management is split into parts or we have commercial product manager to follow the commercial aspect of the development of a product, and then technical product manager that can translate the commercial part into the technical requirements and technical guidance. So I do the technical part.
3	Researcher	Have you been a part any of the previous integration the company C or any others?
4	R7	No not directly I was... Actually, not... I was involved in Spring Mobil that was a small, small operator in Sweden and then it was bought by company A so I went through that merger as well but I didn't see that much.
5	Researcher	Okay!
6	R7	Because I changed totally, my role and I didn't see what did happen.
7	Researcher	Because in the current integration process, what are you doing what is your role in within the current integration?
8	R7	Okay. The integration with company B was kind of not expected in a way, because we the company was going in a totally different direction. Actually before we merged with company B. So I was part of a group called the shared operation that had the mandate of harmonising the products within the full company A group. So the seven - eight countries that we are operating in. But then when company B... when it was I mean so the company B merger was more a financial thing. I mean it was good to have these two companies together more than it was driven by an industrial move... let's say it was more a financial thing. And so, when it was announced that company B and company A was merging, Of course my group... and when this was... I mean the result of it would have been that Sweden being more or less 80 percent of the revenue of the company. So there was no need anymore to have centralised operation at all to harmonise products. I mean there is no... I mean company A right now is mainly Sweden. So my group... it was obvious that my group was going to be the dissolved in a way, and when we started to operate the integrating my role was to make sure... I mean the goal. The first goal of the integration was to try to take advantage of the merger as soon as possible. So we started to work even before we had approval to create, to allow cross selling of products. So to allow company B to sell subscriptions and to allow company A to sell fixed subscription. My role in that, in this specific

		case was to ensure that the IT systems where as a rate... were modified or was updated so that company B could sell company B subscription. I mean subscriptions.
9	Researcher	Okay.
10	R7	So in a TPM fill... so a Technical product manager. So I was basically collecting requirements from marketing but it was pretty simple. The case I mean we have to sell subscriptions with the company B brand and I drove basically the changes into the company A systems to ensure that we were supporting those things those new subscriptions.
11	Researcher	Is this a part of the "Storm the gates".
12	R7	Yes that is the "Storm the gates", yes.
13	Researcher	And for how long have you been working within the organization?
14	R7	With "Storming the gate" or in company A? In company A I started in 2010.
15	Researcher	Okay so nine years almost.
16	R7	Yes!
17	Researcher	So the integration... the literature divides the integration into phases. Is it possible for you to describe how the integration looks and may be divided into phases if you're working with different phases?
18	R7	But I mean... there is okay there are no phases or we have only two at the moment. The first away phase to allow cross selling. So we basically made that very ugly solution that the allow company B to sell mobile subscriptions. So basically I don't know how much fully familiar you are with the company A system. But, you can divide them into big groups. It's the BSS or business support systems and OSS, Operating support systems. Of course both company A and company B... they have their own BSS and OSS systems that overlaps, but they do different things. So in this case we just connected the BSS systems that are in company B. I mean the Customer Relationship Management, the CRM, the billing to... with a loose wrap but as it is called with a kind of system in the middle that will allow company B system to sell, to send the request or orders to company A systems to do the technical provisioning and then send back the answer. So this means that we actually have right now two... when you buy a company B mobile subscription your order across a lot of unnecessary systems because they are duplicated so the same order is more both in company B and company A systems. And this was like the fastest thing that we could do to start selling as soon as possible and we need... I think it was like November was announced the merger and then in January we started to do this Cross-selling kind of February I don't remember now exactly the month. So from that point of view it was a success and it went very well. But now we are in the second phase if you want to call in that way where we are trying to fix all these... I mean the solution is not optimal and it's hard to maintain. We have failures, orders failing on different systems because there is no... I mean the solution is crappy basically. And... so this is a second phase where we will fix this solution and, I mean if you want to see this in on a bigger scale it's a big problem, because right now as I said we

		have in total... we have... just for residential customer we have two different IT stacks and we need to consolidate this into one. So the company B solutions specifically it's, we don't know how much we can like invest money on these because probably will end up enabling a totally different stack or a totally different architecture in one year from now. And then it's worthless to spend money fixing something that is kind of working. I don't know if I maybe... I made the point
19	Researcher	We understand! We interviewed "name" as well and he we said...
20	R7	Which "Name"?
21	Researcher	"name", and he spoke about the different gates, 1 to 5.
22	R7	Yes.
23	Researcher	Is this something you're working with as well.
24	R7	No but, that's I mean, it's the gate the model. In company A have a gate model that consists of five gates and that was related to the "storm the gate project" but the project is close now. So there is no gate anymore. Storm the gate is close now it's operational it's not it's not a project. There is no specific people there just for the project now. It's like everyday activities let's say.
25	Researcher	So during these two phases you spoke about: where did you encounter the most problems? Which one was the hardest?
26	R7	I mean, the first part was that during... the "Storm the gate" was hectic, because it was a lot of activities done. At a very quick base and from an IT point of view it was very intensive. Now it's a little bit less intensive but now the pressure is more in to the customer service, because they have to deal with the systems that are not properly working. And with the sales channels let's say the Web and the store, where they have this crappy systems I said. So now it's more on the operational activities that the pressure are. I mean the second phase where we are trying to adjust the solution, even started the problem yet, properly yet. So we are making small adjustment here and there to reduce the number of failing orders and to make life of people a little bit easier. But we will need to review the architecture or the full architecture and we will need to build new systems as I said. But this hasn't started yet because we don't know which architecture we're going to use, finally. And we don't know which brand is going to survive. Is it going to be company B mobile or it's going to be company A?
27	Researcher	Ok. So which of these processes you spoke about. You think is the most important for the integration itself?
28	R7	I mean that now I think the focus is more. Okay... Let's say we have a solution that is more or less working. Now the pressure is on the operational, but the challenge more than the pressure now is on the organizational level because we need to merge two companies. And that's really complex, because we have two different mentalities and two different ways of working and two different organizations. So we are merging slowly the organizations now, so the IT has been merged together at the... So the people are now... we have groups with both company B and company A people but still each of them are working exactly the same way as before. And we haven't even started to stream, streamline again the

		processes and having only one. And there is people working on this and that I think is the biggest challenge right now. Just to get a new organization that can like operating in the best way possible and the new processes that can encompass both like mobile and fixed wards.
29	Researcher	Okay. So there... there's a lot about threats in the literature. What kind of threats does you see and risks during integration? This can be both on a high level and on a low level.
30	R7	I mean this is a big change. And... There are I mean... One big problem is that I guess in one-year time a lot of people will leave. Because you kind of a go... exit from your comfort zone and you don't feel comfortable anymore and if you... since everything are changing around you. You can... I mean you can change job as well you can change company as well and then it's an I mean... will have to go to a change anyway or you can leave the company easily than that than before. And, so this is one big problem I think and... Of course that the better you are the easier is for you to find a new job. So most of the brilliant people will probably leave from here unless they find a new good opportunity in the other company.
31	Researcher	Well what consequences do that carry out for the integration itself. If people with high knowledge about the systems are leaving how does it affect the integration itself?
32	R7	I mean it will slow down all the activities. I mean not no one is like irreplaceable so... the companies are so big of course that every. I mean there are at least two or three people that know the concept. It's not that this one of them are leaving and no one knows anymore or how things works and also we have documentations and there is.... You can always investigate the what and how the system works but of course I mean we have already... there have been already like three key people that have left the company that were part of the integration and this make things like slower. I mean we are slow in finding solution and now understand what's the root cause of a problem.
33	Researcher	So what do you think about the organizational culture when merging two companies?
34	R7	Yeah that's... It's also an interesting thing. I mean in company A we have had always this strong culture about.. we have this or we had this 6 values and we should have been working according to this six values. And I think actually that company A was very good in translating these values into or in practices or everything was about those five values that were like a humble, humbleness, and cost, conscience, and challenges. And I don't remember all of the six of them by heart and... But now I know what this is going to, how this is going to change with the company B merger. I think is going to have a big impact on the company. I don't know in what way but I think is going be big input.
35	Researcher	How do you think the culture or the different organizational culture affected the integration process, did it slower it or?
36	R7	Yeah, yeah! It was a big hit actually and each is right... at the moment as well. We at company A think that... I mean company B people are shocked because

		they a lot of things have changed their own on their way working. And... but we company A employees...
		We are shocked as well because a lot of things are changing in our organization. So I mean we had a totally different culture on this sense so they are they... For instance in It the company B people were working with this totally agile methodology where there was no... they never accepted that... to commit to a plan because they always say: okay we will finish you and we will finish! There is no, no one can force IT to deliver in this time because it's the IT teams, the agile teams that will grow the solution by themselves and they will not commit on anything that is not updated that is imported from the top management. On the company A side instead, we set up a process... project that was... had the delivery date and the, you know it's two different the way of doing it. I mean you can if you want speed up things you can add more people. And this was what company A did on the company B side. They just... they didn't do it. I mean they were the same people that were doing all the implementation. They just stopped all the activities that they were doing before. So this was a big change and also I mean they. We have different culture a different approach towards the systems and the people in IT, in company A IT and company B IT. So company B IT is very small and it's all people are in-house in Sweden and organised in cross-functional teams and as I say they are company B employees. In company A instead we just like six months before we merged with company B, we essentialised all the IT people, so the company A people, company A IT people now belong to Cognizant, It is a third department that are supplying company A, not in Sweden, they are either in Riga or in India.
		So this you know this is a very big difference because they can they... I mean in company B you can do things very fast because you take a team that shall do or shall do an implementation or you organize the activities and they can deliver it in a sprint, it's sometimes a couple of weeks. In company A we have a very heavy processes even though we call it agile to implement a new thing. So it's.... and it's harder to communicate with people who are not on site.
		To contact them via Skype or via phone. I mean it's not as you go to a desk and ask someone a question or ask him to do something it's more heavy the process. So these two different approaches. They are... slowing down things and the creating crashes in all the activities that we do. And we don't have processes for handling things. For instance, I mean... we have a support organization in company A that handle the fallout. So I mean the orders that are not are... that are stuck in some system and company B doesn't have it. This is because they do everything in these cross-functional teams. So, I mean they... the two is let's say still do not collaborate very well, right now!
37	Researcher	Perfect. So before you went into this merger what kind of pre research did you do with a focus on your role?
38	R7	No I didn't do any research, as I that no one before the merger with company B was announced the idea was... I mean... It was mobile first and digitalised everything. And then... OK! now we have a fixed company instead it's not anymore mobile first and harmonize things among countries. It's totally different, so I didn't do any research. It came from the top management, or actually the investors that hold company B and company A.

39	Researcher	Because we've understood that there are some legal restrictions that's like hinders you from doing the prior work you can do before the acceptance of the merger itself?
40	R7	Yeah yeah! We could the talk with company B if that's what you mean we had a third company doing the implementing this like in intermediate... or lose rough but in the middle so that they were, we never had the possibility talk directly with the company B people but we were talking with a third a party and they were talking with them, so we built some like white label called the white label services, so a set of API that we could interact with then on the other side of the API there was the company B systems. So we have a middle system that is just doing translation of calls and data just because we couldn't talk with company B people before if that's what you mean...
41	Researcher	Yeah, but before you weren't able to do anything, any prior work before the acceptance of the merger itself or did...
42	R7	No, no... we, I didn't actually so I don't know.
43	Researcher	Okay, so you didn't? All right. Do you know if there were something that someone of your colleagues did to like make it easier when the deal was done so to say?
44	R7	I... There was a work stream trying to work, trying to understand what could have been the fastest the way to cross-selling products. That's what was done as far as I know. So stormed the gate, the real beginning of Storm the gate was to investigate what could have been a possible solution to cross-selling products within the two companies but that was not part of that.
45	Researcher	All right. Because literature suggests that doing an IS due diligence is one of the most crucial parts during this, during... before going into the deal itself.... before the deal is done. Do you agree with doing the prior work that you can do is very important for the integration process itself?
46	R7	Yeah! Totally agree, yes.
47	Researcher	So we heard you had a lot of legacy systems.
48	R7	Yes, we have still a lot of legacy systems.
49	Researcher	What's your thought on the legacy system. Do you think it's good... do you think that's a problem?
50	R7	I mean, Of course it is a problem because we have basically... how can I put this let's say like this: we you know there have been several phases in the telecom industry and in the IT systems in the telecom industry. So each operator in the world started by having very big and monolithic system that we... in company A was called cabs and this monolithic system was something that was... I mean was able to do customer.... I mean everything from BSS and OSS system, basically concentrated in one system and then in 2000, or end of... lets say beginning of 2000, a new way of doing the architecture for IT company came out. It's actually late 90s more than the beginning of 2000, and this is like you can read about the TOM, Telecom Operation Mapping into the Tele management forum pages. So basically instead of having one big system and everything that you

		were delivering something you had to stop all the operation. The system was split into CRM system, billing system, rating engine, delivery engine, and delivery system. I mean in the way you would have smaller pieces to handle and it was easy to easier to maintain this systems. And this was done in... All over the world more or less during the 2000 years, but company A started Later because company A approach was always to be cheap in the IT systems, right? And so we started this journey like in 2010 instead or 2011. And we have just finished to move, we haven't even finished... Sorry... to move all our customers to the new architecture. So we have customers that are still in this old system called Cabs. This means that every time that we do new offer anything new, we have to do it in two different places. Because we have customers in two different places and we of course you cannot tell the customer you are in a different system and then you don't get this offer. So this is a problem because, we... I mean the legacy systems are usually more costly to maintain. Every implementation cost more and there is no knowledgeable then... because all the people are gone kind of. So it's a big problem and it's important that... when we do... now they are merger with company A, we end up having only one set of systems instead of having the company B one, the company A one and then a third the one that we need to maintain. It is the sum of the two.
51	Researcher	So during the integration. How did you integrate the existing information systems during this merger? Did you integrate them together, Partially or did you create new systems?
52	R7	Not right now as I say they are not integrated. So we have both systems up and running and we have company B customers in company B systems and company A customers in company A systems. There is no integration at the moment.
53	Researcher	Did you have like an API that gathered information from both of them?
54	R7	There is no... no one knows. I mean there is no system that holds the information of both systems. I mean we have only one thing called the... What's the name of it... It's... Okay... it's a kind of, I don't remember the name of it. But basically we have one system that just gather information from both company A and company B customers and then it's able to give, if your customer at both company A and company B, you can get a reward. So you can get double speed or more data for instance. But that's the only like system that kind of get information from both company B and company A systems. But there is no integration at the moment; everything is so on their own.
55	Researcher	So the literature mentions cyber security as a big threat towards a successful integration. How do you work with the cyber security and how do you maintain a high level of security?
56	R7	I don't know why the literature says so... but I haven't seen any problem with cyber security at the moment. I am not aware of any problem.
57	Researcher	Well you don't work with continuously? There is just a high level of security?
58	R7	Yes. I don't work with security. Basically I cannot tell that much.
59	Researcher	Then we're heading off to the last question and this is a philosophical question. So how do you define successful information system integration in terms of time, quality, and costs?

60	R7	Yes, it's a heavy question. I will say that when you merge two different realities. You should be able to; I mean it's a good... I mean you know we... Telecom markets are very dynamic. So we have a lot of legacy offers or price plans or service that we sell to the customers, and we keep maintaining those services because we have customers that are using them. But when you get... when a merger is done, I think that's the perfect opportunity to do two big things in a way. One is to rationalize your offer and remove the legacy offers and services where there is few customers and when… basically they're maintaining those services become, at the end not very profitable. So one thing that should be done is to harmonize or reduce that say or get rid of the legacy offers and the like streamline it. Because I mean if you see... I've been doing this, I've been seeing this in different companies actually, but it's more or less the same everywhere. We have, I don't know 60, 70 percent of all customers in the top 30 price plants for instance. And then we have the rest the 30 or 25 percent of the other customers in spreading like 500 different, price plans or different service or offers whatever you want to call them. So one good, this is a good opportunity to get rid of all this small and not very profitable price plans or services. And the second thing is that we... for sure you're going to have... You either you move the customers to one of the two It systems that like for instance we could move company B customer to company A systems or vice versa or we will end up in creating a third... architecture where we will move all the customers and this is where the second opportunity of rate merger comes. I mean you could in this way you could leverage on new technologies to create the better processes and the better, how can I say. I mean let's say you can get... you can get leverage of better like new system. I mean you stream, you get you can have a much faster and slimmer processor by having new systems not the legacy one. I don't know if it was clear enough...
61	Researcher	It was a philosophical question and it was philosophical answer. It was good. So is there anything you want to add that you think we have missed in our research or in this interview so far?
62	R7	No... Okay! My point of view is this. The IT is never actually... I think it's seldom me that the problem, the real problem because IT is just a reflection of the company and, I mean technically you can do whatever you want it's just a matter of cost and time. There is nothing that you cannot do by building a new system and fixing it. The biggest problem or what cause most problem is... as you say that the culture and the organization because people have to change and adapt to a new organization and to a new way of working and that's where the most difficult part comes. And because that's... I mean, IT usually doesn't even start to do any integration before there is a new set of a new organization in the company a new set of processes and its chaos in the beginning but IT will in the end adapt to whatever it is the problem. But I have... I... Most of the time the problem is that the organizational level I mean... I remember when I was working in Italy before I came into Sweden, and I was part of the merger of Telecom Italia that was the fixed operator in Italy with Team Telecom Italia Mobile that was the mobile operator and that was just before I left Italy. I was into the project that should have been the new system to handle both fixed customers into one. So we did the two years of analysis and then. I mean there was no problem with the technical part. Then this new system never came out or was never born because the company itself didn't merge their organizations. So we still had the two different group of customer services, we still had two different group of sellers.

		And the different process so there was no point in merging the IT systems. Because... I mean no one would have used them consistently. I mean the same way since they had different way of working. So I think it's the organizational part that is the most important part that needs to be fixed.
63	Researcher	But it still affects the integration itself as you mentioned earlier?
64	R7	Yeah, yeah! Of course.
65	Researcher	So that was the last question. Thanks for your time!

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