

# The role of Information Systems in Mergers and Acquisitions

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# THE ROLE OF INFORMATION SYSTEMS IN MERGERS AND ACQUISITIONS

## *Abstract*

*We studied the role of information systems (IS) in Merger and Acquisitions (M&A). We developed a framework which may be used to analyse, describe and explain ideal types of IS integration in M&A. The frame consists of a strategic and a temporal M&A perspective and two main dimensions of M&A integration: market and organizational. For the strategic perspective: growth is identified as one of the main drivers for M&A, which may be achieved by operational capability (synergy) and/ or innovation capability (knowledge). The IS ideal types are mapped on the operational and innovation capability. To demonstrate the framework and fine-tune its conceptualization we used the airline industry as surrounding environment: the dynamics and frequent changes in the airline industry provide a fertile ground for M&A research. The framework and typology serves as a well grounded structure to analyze the role of IS in M&A.*

*Keywords: M&A, Merger, Acquisition, IS integration, Knowledge integration.*

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# 1 INTRODUCTION

Information systems (IS) are often of crucial importance in merger and acquisition (M&A) ventures. Moreover, the extent and nature of the subsequent systems integration process is closely linked to the particular objectives of any M&A undertaking. In this study, we develop and assess a framework that clarifies the various roles of information systems in M&A and demonstrates how information systems can support or inhibit attaining the underlying strategic intent of a particular M&A undertaking. More specifically, we explore the role of systems integration and the role of knowledge exchange vis-à-vis the intended objectives and aims of archetypical M&A ventures.

The initial framework was developed based on extensive literature review that covered the M&A and systems integration literatures. Further development has been made based on data from the airline industry. The dynamics and frequent changes in the airline industry provide a fertile ground for M&A research. In this paper, we use four illustrative cases of airlines M&A to demonstrate the framework and to fine-tune its conceptualization. For the final installment of this study, we also developed a capstone case on the Air France KLM merger, which results in elaboration of propositions set forth by the framework and a typology about the role of information systems in M&A projects.

Providing a structured framework that supports clarifying the role of information systems in archetypical M&A ventures makes several contributions to theory and practice. We submit that aligning the respective information systems with the objectives of a particular M&A venture is critical for its success. The framework may support business managers in making better decisions in the pre- and post-M&A phases. It can also help the IT organization in turning information systems into a catalyst and enabler of the M&A venture. In addition, the framework provides scholars with a structured instrument to study the impact of information systems in an array of M&A ventures. Furthermore, we extend the knowledge base of M&A in general by clarifying further the terminology and argument on M&A objective.

Following a literature review in the next section and a description of the study design in the subsequent section, we illustrate and discuss vignettes and case study findings in reference to the role of information systems in M&A and wrap up with discussion and conclusions.

## 2 LITERATURE REVIEW

Clear understanding of the M&A phenomenon is a prerequisite of developing a view on the role of information systems in M&A. Unfortunately the literature does not provide a common reference and a set of clear definitions of the terms merger, acquisition and M&A. In all, following an exhaustive search, we identified 44 papers with reference to M&A and/or IS integration in leading IS and Strategic Management journals. With no close contender, the strategic integration approach model of Haspeslagh and Jemison (1991) has emerged as the leading model in the respective literature. There is also agreement regarding the importance of IS integration for the success of M&A ventures, but there is no clear and generally accepted model that explains the role of IS in M&A ventures and their impact on their success. Surprisingly, no other clear dominant themes emerged from the literature. In an attempt to classify the apparent hodgepodge of M&A-related concepts, definitions, and dimensions in the literature, we angled the studies using three categories: strategic, temporal and conceptual perspective. We refer to the IS perspective and, another important topic identified in literature, capability transfer, knowledge integration, what we think is interconnected with IS.

### 2.1 Strategic Perspective

The strategic perspective is the most dominant view on M&A. There are several indications in literature that the desired goals of M&A ventures are not easy to attain. A lot of mergers are considered not successful in terms of achieving the intended objective (Merali and McKiernan, 1993; Robbins and Stylianou, 1999; Arlanta, 2005; Wijnhoven et al., 2006). We found in the literature out of 44 papers an array of incentives to pursue M&A ventures, as summarized in Table-1 below.

M&A Objective	% Total (N=114)	Number of references
Synergy, economies of scale and scope	37%	42
External growth by market share, market/ product diversification	29%	33
Acquisition of new products, patents, technology, employee capabilities	23%	26
Improve financial performance	7%	8
Obtain personal benefits	4%	4
Internationalization	1%	1

**Table 1: Distribution of M&A objectives cited in the literature**

Integration decisions need to be made to achieve the M&A objective. It focuses on the integration process and it is critically important to the success of M&A ventures (Haspeslagh and Jemison, 1991; Buck-Lee et al., 1992; Johnston and Yetton, 1996; Mehta and Hirschheim, 2007). Haspeslagh and Jemison (1991) define integration as ‘an interactive and gradual process in which individuals from two organizations learn to work together and cooperate in the transfer of strategic capabilities’ (p 106). Another definition states that ‘integration is the quality of the state of collaboration that exists among departments that are required to achieve unity of effort by the demands of the environment’ (Lawrence and Lorsch, 1967a: 11, quoted in Gulati et al., 2005, p 418). According to Haspeslagh and Jemison (1991) the level of integration depends on the need for organizational autonomy and the need for strategic interdependence. Based on their research in the eighties, Haspeslagh and Jemison developed a view on what they labeled “Types of integration approaches” (1991, p 145). The need for strategic interdependence and the need for organizational autonomy are two key factors to decide on four possible types of integration approaches: preservation, symbiosis, absorption and holding. With strategic interdependence Haspeslagh and Jemison refer to the nature and management of interdependencies between both organizations and with organizational autonomy they refer to boundary management, the need for independence for the company taken over on company wide level or distinct units. Organizations involved in M&A can have a high or low need for either or both key factors, resulting in one of the four integration types.

## 2.2 Information System and Knowledge Perspective

The integration approach typology of Haspeslagh and Jemison (1991) is referenced by all papers found in the IS integration literature. A number of additional dimensions are proposed to analyze and describe IS integration in M&A. The literature is characterized by complex models and emphasizes on very different concepts of strategic planning, decision making, integration success and/ or (organizational, strategic, cultural or IT) fit. There is agreement on the importance of IS integration (in number of cases the term IT is used) for the success of the M&A (Brown and Renwick, 1996; Stylianou et al., 1996; Weber and Pliskin, 1996; Giacomazze et al., 1997; Robbins and Stylianou, 1999; Alaranta, 2005; Wijnhoven et al., 2006; Henningsson and Carlsson, 2007; Mehta and Hirschheim, 2007), but there is no clear and generally accepted concept why this is the case and how this role of IS integration in M&A contributes to the achievement of the M&A objective. Worth to mention is the mapping of IT integration strategies with integration approaches (Wijnhoven et al., 2006), which may consist of complete, partial or marginal IT integration. Wijnhoven et al. (2006) map total IT integration with absorption, partial IT integration with symbiosis and marginal IT integration with preservation. They furthermore introduce an IT integration method, which may be renewal (replace with new systems), takeover (systems of one as the new system for all), standardize (best system is selected) or synchronize (preserves the original system, but create bridges or periodical synchronize information in system).

Another integration aspect mentioned in literature as critical to the success of the M&A is capability transfer (Haspeslagh and Jemison 1991; Bresman et al., 1999; Graebner, 2004; Puranam and Kannan, Forthcoming). Capability transfer is related to innovation capability, the acquisition of new products, patents, technology, and employee capabilities. In capability transfer knowledge is a key factor (Ahuja and Katila, 2001; Björkman et al., 2007). Knowledge refers to what is known and capability to what is done with what is known (Puranam and Srikanth, Forthcoming). Knowledge is primarily exchanged through interactions between the acquired and acquiring units, and requires teaching and learning on both sides (Haspeslagh and Jemison, 1991; Ahuja and Katila, 2001; Björkman et al., 2007; Ranft and Lord, 2002). Intensive communication is a pre-requisite for knowledge integration (Ahuja and Katila, 2001; Björkman et al., 2007; Bresman et al., 1999; Puranam and Srikanth, Forthcoming). The innovation capability of a firm in M&A might be enhanced by new knowledge or by combining existing knowledge, which may be complementary or similar, in literature usually addressed with the concept of relatedness (Ahuja and Katila, 2001; Vermeulen and Barkema, 2001; Ranft and Lord, 2002; Puranam et al., 2006). Also the concept of absorptive capacity, the ability of a firm to absorb new knowledge, is references to relatedness (Ahuja and Katila, 2001; Björkman et al., 2007; Bresman et al., 1999). The innovation capability of a firm may be measured by patents and or R&D expenditures (Ahuja and Katila, 2001; Puranam et al., 2006; Puranam and Srikanth, Forthcoming). Furthermore an important notion in literature refers to the potential destroy of value when people leave, the destruction of the acquired firm's knowledge-based resources through employee turnover and the disruption of organizational routines (Haspeslagh and Jemison 1991; Puranam et al., 2002; Ranft and Lord, 2002; Graebner and Eisenhardt, 2004).

## 2.3 Temporal Perspective

The M&A process may be split into pre-M&A, the transaction (making-the-deal) and post-M&A phases (Merali and McKiernan, 1993; Mehta and Hirschheim, 2004; Wijnhoven et al., 2006; Henningsson and Carlsson, 2007). The pre-M&A is the phase in which all activities are initiated to prepare the deal, strategic planning, searching for a partner, due diligence, negotiation and communication. In the deal phase the actual transaction takes place and the legal entity of the firm(s) is established. The post-M&A phase cover the integration process of the firms involved. Since the integration strategy has implications for the legal form of the M&A, it might also be a topic on the agenda in the pre-M&A phase (McKiernon and Merali, 1995; Weber and Pliskin, 1996; Epstein, 2004; Henningsson and Carlsson, 2007). Haspeslagh and Jemison (1991) state that integration is often handled artificially and only as a vague fashion in the pre-M&A phase, causing integration problems

later in the post-M&A phase. In literature IS topics mainly appears to be studied in the post M&A phase, there is only reference to IS in the pre-merger phase in 5 papers (Merali and McKiernan, 1993; Weber and Pliskin, 1996; Epstein, 2004; Henningsson and Carlsson, 2007; Henningsson, 2007).

#### **2.4 Conceptual Perspective**

When do we speak about merger and when about acquisition, or should we simply refer to M&A? We found no clear answer and no common reference to a set of clear definitions of the terms merger, acquisition or M&A in the respective literatures. Either researchers do not provide explicit definition of merger, acquisition and M&A, or they refer to the terms with different meaning. Some researchers do not distinguish between merger and acquisition, and argue that the two terms are interchangeable. They hold that the difference between the two relates only to legal matters, there is no need to make a distinction from the perspective of process or integration (Haspeslagh and Jemison, 1991; Brown and Renwick, 1996; Metha and Hirschheim, 2007; Henningsson and Carlsson, 2007). Henningsson and Carlsson (2007) state that a merger suggests a neutral combination and acquisition connotes to takeover, in contrast Graebner and Eisenhardt (2004) refer to an acquisition as courtship, which implies a mutual agreement between the seller and the buyer. Wijnhoven et al (2006) suggest using the term merger instead of acquisition for simplicity sake and to avoid confusion. Yet, Epstein (2004) prefers to retain the distinction by relating to a merger as a union between relatively equal organizations coming together and taking the best of each company to form a new organization, while an acquisition as a simpler process of fitting one smaller company into the existing structure of a larger company. We may discuss additional variations and nuances but the above is sufficient to support our point. The study of M&A will benefit from a unified and clear fundamental terminology.

### **3 STUDY DESIGN**

To gain better understanding of the role of IS in M&A we performed a study to develop a conceptual framework on the role of IS integration in M&A. The question to be answered is: what is the role of IS integration in M&A? The question is relevant since in literature there are several references to the crucial importance of the integration process to achieve the M&A objective, moreover in the IS literature domain there is the importance of IS integration in M&A. Nevertheless the importance, there is no clear view on why it is important and how IS enhance the achievement of the M&A objective.

#### **3.1 Research Design**

To develop a view on the role of IS integration in M&A we searched for papers with reference to information systems (IS) and M&A published in leading journals in the IS research, we only found 15 papers. We extended the literature scope to IS integration not related to M&A searching in IS literature on the one hand and to M&A integration searching in leading strategic management journals on the other hand, resulting in a scope of 44 papers. An important additional source is the book of Haspeslagh and Jemison (1991), referred to in all 44 papers. The search for papers has been performed on the terms “M&A and IS” or “(Merger or Acquisition) and IS” or “M&A and Integration” or “IS and integration”. Several other possible terms crossed our mind, like “Alignment” and “Implementation”. We decided however that these terms would lead us away from our main scope, IS integration. To double check on our accuracy of search we performed another extensive search (see appendix 1 for an account) after which we found 26 additional papers. These papers are not part of this study, based on first glance of relevance and limitation of time. In additional research the papers may be used. Repetition of search with the same outcome will prove the accuracy of the search approach and on the outcome (reliability).

Concepts elaborated in the selected papers have been used to structure the framework into, what we think is not only a valid instrument to interpret the role of IS in M&A, but also provides a framework for M&A from a general market and organizational perspective. The framework has a solid base. We used the, in the literature well know, four types of integration approaches of Haspeslagh and Jemison (1991) as fertile ground to develop the framework. Adaptation and extension resulted in, what we consider, factors of importance in an M&A integration environment.

The IS perspective is resolved in the identification of ideal types set against and incorporated in the dimensions of the framework. Ideal types are conceptually derived interrelated sets of typology, and may be seen as constructs representing holistic configurations, abstract models and a guideline to the construction of hypothesis, in our case propositions. Typologies are complex theoretical statements developed to predict variance in dependent variables (Doty and Glick, 1994). Theory is according to Doty and Glick “a series of logical arguments that specifies a set of relationships among concepts, constructs, or variables”. Ideal types are constructs, have a relationship among the constructs and this relationship must be falsifiable.

In this research we did not have the intention to cover the whole area of theoretical development of a concept and the falsification of these concepts. However to get a grasp of the validity of the constructed framework we wanted to have a first check on the usability of the framework in a dynamic day to day world.

#### **3.2 Site Selection**

To preliminary validate the framework we used illustrative cases found in the context of the airline industry. This branch of business is since the start an environment with high degree of M&A and it was the first industry to have on broad scale automated IS systems implemented to support international business processes.

### **3.3 Data Collection**

Annual reports, corporate websites information and news articles available on the internet have been analyzed to depict the cases. Successively the Air France - KLM merger is used as case study to further analyze the validity of the framework. Eight in dept interviews have been conducted, in the period of May and June 2009, with middle and higher managers working in, or direct, merger projects within Air France and KLM in the first four year of the merger.

Participants for the interview were selected based on their involvement in the merger and the position they were entitled to make decisions and/ or their role in key projects. Convenience sampling is used as data collection method: no attempt is made to random select the interviewees. The study concerns qualitative research, a quantitative data collection method is not relevant. The participants of the interviews were part of the following organisation units of the Air France – KLM group:

- Air France – KLM International & the Netherlands (3)
- Commercial division KLM (4)
- Air France - KLM Cargo (1)

The functions of the participants of the interview were at the time of the interview: vice president (3), director (1), general manager (1), controller (1), IT project manager (1), business and information architect (1).

The M&A framework dimensions are used to structure the interview. The interviews have been conducted with merely open questions in a semi structured way, which means that the order of questions asked does not necessarily follows the interview protocol, and the question asked has been rephrased. Conducting the interview, three questions have been removed from the interview protocol in retrospective, since the questions did not result in feasible answers due to irrelevance, time squeeze or repetition. Appendix 3 provides the account of the interview protocol.

### **3.4 Data Analysis**

The eight interviews resulted in a large amount of semi structured data. For that way analysing the interview answers, a reshuffle has in some cases been performed between question and answer. Also to consolidate the answers to a useful level, interpretation has been made. Where there is always a risk of misinterpretation. This account especially for the decisional dimension, no direct question has been included in the interview protocol: the idea is that this dimension should be derived from the integration topic in case the interview protocol was developed well. The interviews have been recorded and noted. These may be used to validate the results found. Appendix 4 contains a synopsis of the results of the interviews.

## 4 M&A FRAMEWORK DEVELOPMENT

The strategic perspective is the most dominant view on M&A ventures. The prominent strategic intents to pursue M&A ventures are related to synergy, growth and capabilities. We propose to relate these strategic intents as follows: the M&A intent is to create value (growth) for the involved firms, either by way of managing operational capability (synergy) and/ or by innovation capability (knowledge). For operational capability we understand, in the context of business, synergy as the working together of entities to produce an effect greater than these entities separately could have produced. Synergy may be related to revenue, management and costs. In the revenue and costs context we consider external growth by way of market share (economies of scale) and market/ product diversification (economies of scope) as part of synergy, see table 1.

The ambition for growth may be financial driven or defensive driven, in case severe competition dominates the market environment, or both. The proposed relationship is the cornerstone of the M&A framework we discuss in this section. First we draw on the main integration strategies identified in literature. Then we focus on information systems and knowledge integration.

### 4.1 Integration Strategies

In literature we found two main M&A integration strategies:

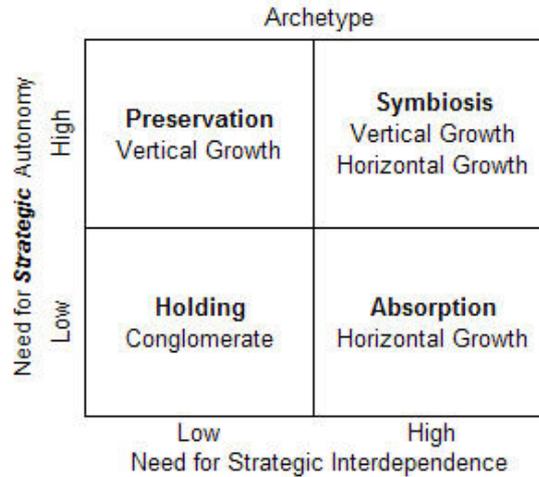
- Vertical, horizontal and conglomerate (Giacomazie et al., 1997; Zollo and Singh, 2004; Wijnhoven et al., 2006; Henningsson and Carlsson, 2007).
- Absorption, symbiosis, preservation and holding (Haspeslagh and Jemison, 1991 and all other authors referring to Haspeslagh and Jemison).

The vertical, horizontal and conglomerate strategy refers to the place in the value chain and therefore emphasizes the market context. The absorption, symbiosis, preservation and holding strategy emphasizes how the firms will be integrated and relates therefore to the organizational corporate perspective. It is proposed here to refer to the vertical, horizontal and conglomerate as '*M&A market integration types*' and to the absorption, symbiosis, preservation and holding classification as '*M&A organization integration types*'. Haspeslagh and Jemison (1991) refer to domain strengthening, domain extension and domain explorative acquisition strategies which relate in our view respectively to horizontal, vertical and conglomerate growth strategies, and are consequently linked to what we refer to as M&A market integration type.

We comment Haspeslagh and Jemison (1991) integration approach model: the need for organizational autonomy for a holding is in our perspective high and not low, since subsidiaries in a holding company are normally autonomic on operational and tactical level. On strategic level however autonomy is considered low: the holding company is in the lead to define corporate strategies, including the subsidiaries. From a strategic level the model corresponds, on tactical and operational level not, therefore we rephrase the need for *organizational* autonomy to the need for *strategic* autonomy. Furthermore we extend the model with the M&A market integration types. Mapping the market and organizational integration strategies results in an archetypical integration framework, see figure 1.

It may be argued that absorption and symbiosis are related to synergy and holding and preservation are related to innovation capability strategies. This is consistent with domain strengthening (horizontal or vertical growth) to gain more synergy and domain extension and domain explorative (conglomerate or vertical growth) to acquire innovative capability. The need for low or high interdependence support this view, high interdependence provides opportunities for synergy, where a low level leaves room to explore new capabilities. The autonomy factor provides in case of high need the opportunity to develop innovation capability using incubator structures, which fits with a preservation strategy. In a holding structure usually subsidiaries are added to the portfolio to contribute to the financial agenda and are sold at moment the financial opportunity is achieved, which may be considered as domain extension. The real motive for the preservation approach is to add innovation capability, which is

domain exploration. The need both for high interdependence and autonomy for the symbiosis implies that both synergies and innovation might be supported.



**Figure 1: Market and organization integration types**

#### 4.2 Information System and Knowledge Perspective

Stating that the M&A strategic intent is to create value (growth) for the involved firms, either by way of managing operational capability (synergy) and/ or by innovation capability (knowledge), how does this relate to IS where IS integration is of importance for the success of the M&A venture. IS has the capability to contribute to both the M&A synergy and knowledge imperative. IS here is considered as existing of infrastructure (hard- and software that permit information flow), transaction (business transactions), information (decision support system) and strategic IS (core business IS systems providing competitive advantages) (Weill and Broadbent quoted in Henningsson and Carlsson, 2007). IT is the technology required to make these IS functions possible. When firms merge and acquire, or are acquired, decisions about the level of integration of the information infrastructure, the business transactions, the decision support systems and strategic IS, are required. Each of these functions contributes to operational capability and/ or innovation capability in the post-M&A phase.

There is expected to be a strong relationship between the M&A integration strategies and IS integration. Wijnhoven et al. (2006) proposed that IT integration strategies (complete, partial, and marginal) may be mapped with what we labeled the M&A organization integration strategy: absorption – complete, symbiosis - partial, preservation and holding - marginal, as applies the same for the IT integration methods (renewal or standardization - symbiosis, takeover – absorption, synchronization – preservation or holding).

Another integration aspect mentioned in literature as critical to the success of the M&A is capability transfer (Haspeslagh and Jemison 1991; Bresman et al., 1999; Graebner, 2004; Björkman et al., 2007). Capability transfer relates to innovation capability, the acquisition of new products, patents, technology and employee capabilities. Capability transfer is also related to the IS domain, since information is the prime raw material used by knowledge workers in firms, and product specifications, patents, and procedures and specifications are part of the information provision. Amin and Cohendet (2004) referencing Fransman (1994) make a distinction between the firm as processor of information and as processor of knowledge. The focus of the firm as processor of information is the allocation of resources needed to cope with the external world. The focus of the firm as processor of knowledge is knowledge creation: construct, select, use and develop knowledge, the cognitive mechanisms and routines which play a major role in maintaining internal coherence of the organization. We will refer to the capability transfer integration aspect as knowledge integration, since knowledge refers to what is

known and capability to what is done what is known (Puranam and Srikanth, Forthcoming): knowledge integration therefore is proposed to be the capability to integrate, to implement knowledge.

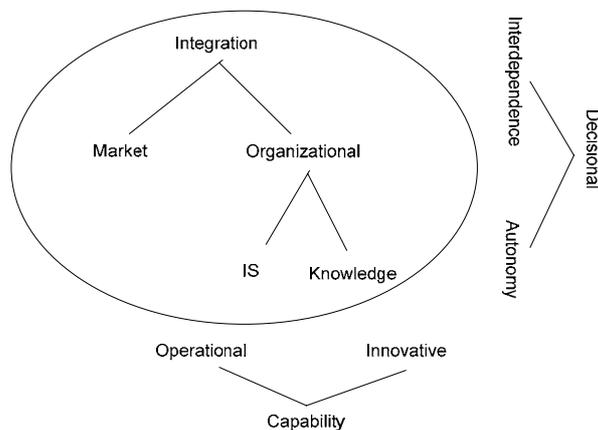
We expect that there is a relationship with the M&A organization integration strategy (absorption, symbiosis, preservation and holding) and M&A knowledge integration like there is for IS integration. The autonomy dimension (Graebner, 2004; Björkman et al., 2007; Puranam and Srikanth, Forthcoming) and interdependence dimension (Graebner, 2004; Puranam and Srikanth, Forthcoming) influence the knowledge integration in M&A (Graebner, 2004; Björkman et al., 2007; Puranam and Srikanth, Forthcoming). Even more, we propose to map knowledge integration and IS integration, in the same frame as autonomy and interdependence.

The role of IS integration and knowledge integration in M&A follows the M&A organizational integration strategy and the M&A market integration strategy. The role of IS facilitates interdependence, where knowledge integration is expected to supports autonomy management and slowly (symbiosis) integrate or leave (preservation) the knowledge culture, secure autonomy, intact, and build bridges to learn and exchange.

### 4.3 Unified Integration Strategies

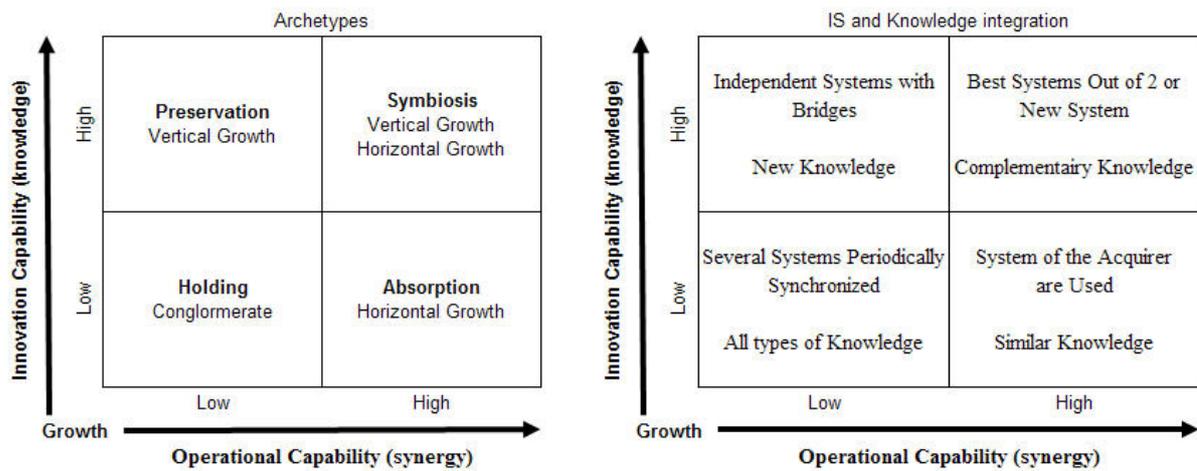
Why do companies merge or take over? As was found in literature the M&A intent is to create value (growth) for the involved firms, either by way of managing operational capability (synergy) and/ or by innovation capability (knowledge). How do companies manage to achieve this strategic intent? By way of the integration strategy they chose, were autonomy and interdependence are decisional dimensions, following Haspeslagh and Jemison (1991).

We consider the need for autonomy and interdependence as corporate decisional dimensions were the organizational integration dimension (absorption, symbiosis, preservation, holding) is a derived function, and in this study, is operationalized in the factors IS and knowledge. The organization integration dimension is associated with the market integration dimension (horizontal, vertical, conglomerate) as is shown in figure 1: to decide on the need for interdependence and autonomy in M&A the market ambition need to be considered as well. The conceptual model is given in figure 2.



**Figure 2: Conceptual model M&A integration**

We translate the conceptual model into a M&A framework, see figure 3. On the left the four archetypes are displayed in the frame of the operational and innovative capability. On the right the expected relationship of IS and knowledge integration types are illustrated within the same frame.



**Figure 3: Extension to IS integration and Knowledge exchange**

Four ideal types of M&A integration appear, directed by the goal of the M&A:

Type	Market integration	Organizational integration	IS integration	Knowledge integration
A	Horizontal	Absorption	Systems of the acquirer are used	Similar
B	Vertical and/ or horizontal	Symbiosis	Best systems out of 2 or new systems	Complementary
C	Vertical	Preservation	Independent systems with bridges	New
D	Conglomerate	Holding	Several systems periodically synchronized	All types

**Table 1: ideal types of M&A integration**

To have a preliminary check of the value of the model (framework and the ideal types) in practice we introduce in the next section some illustrative vignettes.

## 5 ILLUSTRATIVE VIGNETTES

In this section for each of the four M&A integration types, an example in the real world is given, using the airline industry. The airline industry serves as an interesting environment for illustration of M&A integration types, for many examples of M&A can be found. In the U.S. over 200 airlines have merged, taken over, or gone out of business since deregulation in 1978. The following examples in the airline industry are presented to elaborate the four types of M&A integration:

- Absorption: AMR Corporation acquisition of Trans World Airlines (TWA), 2001.
- Symbiosis: Lufthansa and Swiss Airlines merger, 2005.
- Preservation: Global Aero Logistics Inc. (Global) merger with World Air Holdings, Inc. (World), 2007
- Holding: Virgin Group Ltd acquisition of Euro Belgian Airlines (EBA), 1996.

The data analysis method used for the vignettes is based on annual reports, corporate websites information and news articles available on the internet. The unit of analysis is the whole firm.

The next paragraphs contain a description for each of the vignette elaboration the identified ideal types of M&A integration. First a short description of the strategic and temporal perspectives is given to provide the context of the M&A, then the decisional dimensions and the integration dimensions are described and explained in more detail.

Section 5.5 provides a summary in graphical format, in table and quadrant model (2 by 2 matrix) where each of the vignettes is plotted against the axes innovation and synergy.

### 5.1 Absorption: AMR Corporation acquisition of Trans World Airlines

AMR Corporation was established in October 1982 as result of the American Airlines (AA) reorganization. AMR acquired Trans World Airlines (TWA) in April 2001. American Airlines was founded in 1934, where TWA was founded 1930. AMR Corporation is a commercial aviation business and is based in Texas.

*Strategic perspective:* the driver for the deal, seen from AMR Corporation, was to build and enlarge AA's network leadership, strategically growing using the important new acquired TWA hub in St. Louis and improve thereby the position as an east/west carrier, and use TWA's excess maintenance capacity.

*Temporal perspective:* in the pre-M&A phase, January 2001, TWA filed for Chapter 11 bankruptcy protection, a couple of days after it received a bid offering and buyout plan from AMR Corporation. Another bid came from Continental Airlines, Northwest Airlines and a private investor. The bankruptcy court judge decided that an auction would be organized in March to sell the TWA assets. AMR Corporation new and higher offer was accepted. In April 2001 the deal was a fact. AMR bought all of the \$2.1 billion assets and assumed \$3 billion in aircraft leases, hired most of the 20,000 employees, and took over most of the TWA's operations, including its hub in St. Louis, Missouri. The AMR bid included retaining TWA's management. The assets were temporarily transferred to a newly created subsidiary known as TWA-LLC, a wholly owned subsidiary of AA. In the post-M&A phase, TWA was fully integrated into AA. The deal provided AA with 190 aircraft, 175 gates and 173 slots. TWA booking ended formally on November 2001. TWA flew its last flight on December 2001.

*Decisional dimensions:*

- Need for strategic interdependence: high. TWA was integrated fully in 9 months time (April to December).
- Need for strategic autonomy: low. It is assumed that no autonomy was kept for TWA management to decide on assets, aircraft lease or employee, nevertheless TWA's management was retained.

*Integration dimensions:*

- *Market integration*: horizontal growth. Domain strengthening. As the goal of the deal was focused on 1) growth in the same industry, 2) take over, acquire assets, slots, to apply in the existing market and 3) integrate with a competitor with the same products in adjacent market in the same industry (position as an east/west carrier).
- *Organization integration*: absorption. The integration approach was clearly the full take over of TWA and integrate in AA.
- *IS integration*: high. Complete integration, takeover, all systems of the acquirer are used in a short period after the acquisition. Per November 2001 all TWA flights departing on or after December 2001 were removed or changed to AA marketing flight airline code and flight number. All TWA passengers were processed at AA ticket counters, and fly from AA gates, AA systems for marketing and sales (frequent flyers, sales systems like ticket printing, etc.) were used for TWA. AA schedule department scheduled for the AA and TWA network and routes.
- *Knowledge integration*: low. All TWA functions were managed and operated by AA starting of January 2002. All assets were transferred to AA. Per this date also all TWA employees were allocated to AA's payroll. All AA procedures and instruction are expected to be used. TWA employees received the same travel privileges, pension benefits and retiree benefits as AA employees. AA provided former TWA employees full credit for their years of service. The reason is assumed to be the smooth integration, meaning to fully use the knowledge and capabilities of transferred employees.

## 5.2 Symbiosis: Lufthansa and Swiss Airlines merger

Lufthansa, founded in 1926, reached in March 2005 an agreement with Swiss International Air Lines Ltd., to integrate Swiss into the Lufthansa Group as an independent airline and brand. Swiss was formed after the bankruptcy in 2001 of Swissair founded in 1931 and Switzerland's flag carrier. Swissair was a subsidiary of the holding company SAirGroup, even as Crossair a regional airline in Switzerland. Swissair was unable to make payments to main creditors, where after the flight operation was grounded. After interim financing loans the flight operations was remained again, where after the creditors, Credit Suisse and UBS, arranged to sell parts of Swissair's assets to Crossair on March 2002, owned at that time by a consortium of institutional investors and Swiss governmental parties. Crossair was renamed to Swiss International Air Lines. The operation however never turned to profitable situation, which resulted in Swiss search for a partnership with another airline. Lufthansa is owned partly by private investors and partly by public companies. Lufthansa is managed in a group structure.

*Strategic perspective*: the merger of Swiss into the Lufthansa group served several goals: growth (become the leading European network carrier), synergy (economies of scale using hubs, decrease unit costs) and innovation capabilities (enhance product quality and innovation).

*Temporal perspective*: the transaction phase started with the foundation of the Swiss company AirTrust A.G., where of Lufthansa took initially a minor stake (11%) on May 2005. AirTrust had contractual commitments for 84.6% of the major Swiss shareholders. The rest of the shares were offered to AirTrust through public shareholders, after expiration deadline per May 2005 AirTrust held 98.7% of the share capital. Per January 2006 and trading in Swiss shares was suspended on the Zurich stock exchange. In July 2006 the competition authorities (European Commission and American Antitrust Authority) gave their consent for integration, after which Lufthansa took 49% of stakes in AirTrust. The takeover, as Lufthansa refers to the transaction in 2005 in the annual report, or merger, which is also used in 2005 in communication (where in 2007 partnership is emphasized), would be completed after negotiation and agreements for air traffic rights, a precondition for the transaction finalization. Per July 2007 Swiss became a fully consolidated member of the Lufthansa Airline Group. In the post-M&A phase Swiss was gradually integrated into Lufthansa back offices concerned, started in 2005 with the working together between the Swiss and Lufthansa's frequent flyer program, the partnership in the offering of mutual corporate contracts, interline contracts, code-share flights and harmonized flight program on the main hubs, and the mutual offering of Cargo product and services, and the membership of the Star Alliance. In 2006 Swiss moved to Lufthansa's frequent flyer program, joint

corporate and agency contracts was started and exchange of booking and traffic data was implemented, resulting in 2007 in close collaboration on distribution and flight operations, harmonization of their schedules.

*Decisional dimensions:*

- Need for strategic interdependence: high. Integration took place with gradually well planned steps, cooperation is expected to be step by step increased, starting with small teams working together to later more intensified collaboration.
- Need for strategic autonomy: high. Swiss remained autonomic as a unique selling IATA airline. As a full group member Swiss has it owns P&L (profit and loss) and tactical and operating responsibility. Strategic autonomy is expected to be guaranteed by Swiss membership on group level.

*Integration dimensions:*

- *Market integration:* horizontal growth. Domain strengthening. As the goal of the deal was primarily focused on growth in the same industry (network airline, country flag carrier), strengthening the domain with the Swiss hub Geneva and Zurich to become European leader.
- *Organization integration:* symbiosis. The integration approach was clearly to integrate step by step: a gradual process of cooperation, in which parts of the processes were integrated.
- *IS integration:* high. Partial integration, best systems or have new systems. Following the integration process starting with marketing (frequent flyer program), sales (corporate contracts), revenue management (interlining, code-share), network (harmonize flight program on hubs) and alliances (Star Alliance) it is assumed that joint systems will be used. The framework predicts that in a symbiosis the focus will be on the best system or new systems instead of using the buyer's systems. September 2005 Lufthansa decided to replace core IT systems for handling flight operations with a common standardized IT platform, provided by General Distribution System (GDS) provider Amadeus, within the Star Alliance. All Star partners access the same data for reservations, inventory management, code-share management and ground procedures and check-in. It is expected that Lufthansa and Swiss will use this system as well instead of their own systems in use before the merger.
- *Knowledge integration:* High. Exchange and sharing. To integrate step by step a dosed knowledge exchange and sharing is required. On corporate MT level intensive exchange and sharing of progress is expected to be needed at moment of the start of the post-M&A phase, to be able to plan the integration. The impact of the relatively long transaction phase, waiting for the agreements for air traffic rights, the precondition for the final integration, will also have impacted the implementation of knowledge sharing and exchange. Swiss employees remained Swiss employees. No patent or new specific technical innovation is acquired by Lufthansa merge with Swiss. One of the goals of the merger was enhance product quality and innovation, which can be seen as a capability linked in M&A context to innovation.

### **5.3 Preservation: Global Aviation Holding Inc. merger with World Air Holdings, Inc.**

In 2007 New ATA Holdings, Inc., a private airline holding company, bought World Air Holdings (the parent company of North American Airline and World Airways), for \$315 million all-cash transaction and changed during the transaction the name of the ATA holding company to Global Aero Logistics, Inc. (GAL) to reflect the diverse global operations and its recent acquisition of companies. Global Aero Logistics, Inc. changed its name in February 2009 to Global Aviation Holdings, Inc. Terms of the transaction were that Global Aero Logistics would operate American Trans Air (ATA) Airline, North American Airlines, and World Airways under one umbrella, with each airline (ATA, North American, and World) operating independently after the transaction was completed. ATA (established in 1973), an American low-cost scheduled service, and military and commercial charter flights, went chapter 11 bankrupt and ceased operation by April 2008 due to unexpected loss of a major contract for its military charter business, and increases in jet fuel prices. Since then GAL owned and operates North American Airlines and World Airways as two separate US-certified air carriers. Each airline was kept operating

independently as agreed during the merger in 2007. World was founded in 1948 and North American was founded in 1989.

*Strategic perspective:* financial premium for shareholders, growth in future (strategic and corporate flexibility for each of the involved airlines, subsidiaries).

*Temporal perspective:* no information on the pre-M&A phase could be found. Transaction phase: announcement of the merger was made in April 2007, where the transaction completed in August 2007. A dedicated subsidiary, the Hugo Acquisition Corp, was created by World Air Holding, to settle the merger. Post-M&A phase: only one references to integration has been found: it was decided 3 of the planned 9 DC-10s acquired by ATA, would be transferred directly to World Airways' operating certificate after the merger, resulting in employee layoffs at ATA. It is not know if IS was part of the due diligence and if integration was on the strategy agenda.

*Decisional dimensions:*

- Need for strategic interdependence: low. Until now the company seems not gained cost savings through top level managerial and executive redundancies. Information on synergy potential of consolidating training, scheduling, flight crew positioning, reservations, dispatch, medical, human resources, and aircraft stores has not been reported yet.
- Need for strategic autonomy: high. Term of the transaction was that Global Aero Logistics would operate the belonging airlines to the World Air Holding (American Trans Air, North American Airlines, and World Airways) under one umbrella, with each airline operating independently after the transaction was completed.

*Integration dimensions:*

- *Market integration:* no vertical growths, no conglomerate. The framework predicts vertical or conglomerate growth. Based on the limited information available it is not clear what type of growth strategy might be the M&A objective, if any. There was/ is overlap in product (commercial charter flights, cargo, ad-hoc lease, wet lease, military transportation) and market (USA and world) for the involved three airlines. Except that World Air Holding owns an insurance subsidiary, World Risk Solutions. Indication might be that New ATA Holdings Inc. changed its name in Global Aero Logistics at moment of the merger announcement to reflect their diverse global operations. The New ATA Holdings Inc. would nowadays not exist anymore would it not have bought and merged with World Air Holding, due to bankruptcy of ATA airlines. The M&A objective might be only for pure financial reason, no growth strategy intent.
- *Organization integration:* preservation. See need for strategic interdependence.
- *IS integration:* low. Although no information can be found or is available it is expect that the path of marginal integration is followed and that some IS bridges between the airlines exist. Financial information is exchanged, expected using IS facilities.
- *Knowledge integration:* high. No report of knowledge exchange is found between the involved airlines North American Airlines and World Airlines, except for the reference of the mentioned asset transfer of DC-10s. More information is required to judge if the high knowledge integration expected but not found in practice is due to a lack in the framework or that information is not available.

#### **5.4 Holding: Virgin Group Ltd acquisition of Euro Belgian Airlines**

The Virgin Group, a venture capital organization chaired by Richard Branson, is a conglomerate of separate firms that use the Virgin brand in different branches, like travel and tourism, leisure and pleasure, shopping, media and telecommunication, finance and money and health, all labeled Virgin products.

*Strategic perspective:* the takeover of EBA and the rebranding to Virgin Express fitted in the strategy of entering a new market Europe with a new low cost business model, using Brussels as hub. Virgin Express took advantages of the liberalization of the European aviation market, which started in 1993.

*Temporal perspective:* 23 April 1996 the Virgin Group acquired the Belgian charter airline Euro Belgian Airlines (EBA), which started one year before with the low cost carrier business model. After the acquisition the name EBA changed to Virgin Express. The assets, like the fleet of Boeing aircrafts remained, as the staff. In October 2004 the Virgin Group sold its assets in Virgin Express to SN Brussels Airlines, covering both airlines into the parent holding company SN Airholding. March 2006 SN Brussels Airlines and Virgin Express merged into a single company, Brussels Airlines. In November that same year both carriers flew under the same Brussels Airlines brand. One news article was found on a due diligence in February 2006, where the deal was concluded on 23 of April 2006. The EBA brand name officially changed per August 1996 to Virgin Express (IATA airline code from BQ to TV, which accordingly changed in 2007 to SN, after the merger of SN Brussels Airlines and Virgin Express into Brussels Airlines). It is not know if IS was part of the due diligence and if integration was on the strategy agenda.

*Decisional dimensions:*

- Need for strategic interdependence: low. No integration was made with the Virgin Atlantic airline, a full subsidiary of the Virgin Group since 1984 Virgin Express remained independent, also from other Virgin Group subsidiaries in the travel group.
- Need for strategic autonomy: low. It is assumed that the on strategic level the autonomy for Virgin Express was low: decision to buy EBA and to sell Virgin Express in 2004 are expected to be made in the holding. On operational level it is assumed that Virgin Express was fully autonomic in decision making, seen the approach of Richard Branson to supervised business's startup phase, but then step back and delegate to management and only come in as a troubleshooter.

*Integration dimensions:*

- *Market integration:* conglomerate. Domain exploring. The airline industry was not a new area for the Virgin Group, since Virgin Atlantic already had experience since 1984 in transatlantic flights. However the low-cost business model was new.
- *Organization integration:* holding. The Virgin Group is an example of a holding company in the broadest sense as conglomerate, a corporation made up of a number of different companies that operate in diversified fields.
- *IS integration:* low. Marginal integration, systems are periodically synchronized. No system integration is assumed to have taken place within Virgin Group, except for the standard airline industry inter-organizational systems (general airline reservation systems (GDS), use settlement organization BSP, etc.) applicable for all airlines. Per August 1996 Virgin Express had its own IATA airline code TV. Virgin Group was very keen in explore the opportunities provided by wireless telecommunication and the internet from 1997 on. In contrast with other low-cost carriers, Virgin Express was offering connecting flights, requiring interline (interorganizational information exchange) facility with other carriers.
- *Knowledge integration:* low. Innovation capability is incubated. Virgin is known for its innovative brand, illustrated by Richard Branson's way of running businesses and his personal life, step back and delegate, only come in as a troubleshooter. On a subsidiary level: all assets, including aircrafts, slots and employees were taken over from EBA. Since RBA was already experimenting one year before the acquisition with low-cost, this experience can be described as knowledge capability. Virgin Group installed a new chairman and Chief Executive Officer, who joined the Virgin Group late 1995 with the assignment to develop a low cost, low fare jet carrier in Europe.

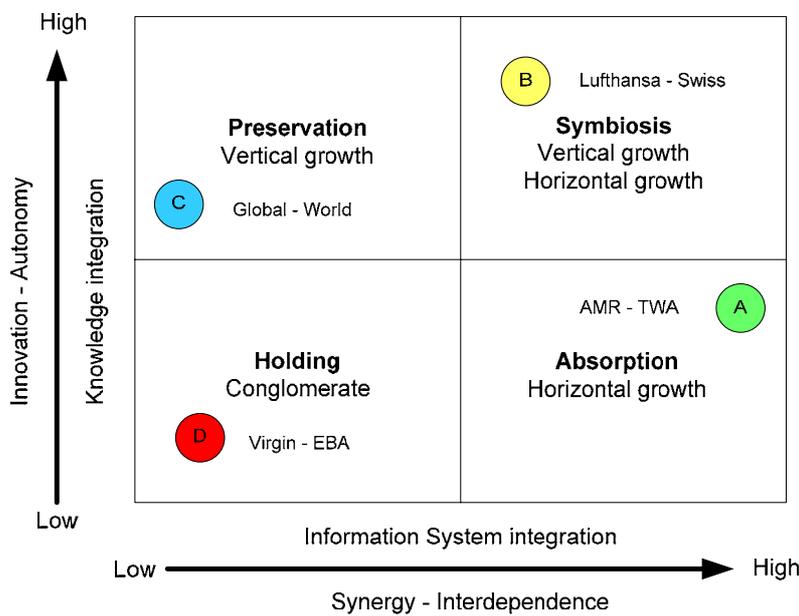
## 5.5 The vignettes in the M&A framework

Below the result for each of the mini cases (vignettes) is presented in table format. Besides, for the more graphical orientated readers, the four cases are plotted in a 2 by 2 matrix, a quadrant model. The x-axis in figure 4 represents the low to high growth ambition by way of synergy capability; the y-axis represents the low to high growth by way of innovation capability. The four vignettes are plotted on the x- and y-axis.

Airline	Decisional dimension		Integration dimension			
	Interdependence	Autonomy	Market	Organization	IS	Knowledge
A AMR Corporation - TWA	High	Low	Horizontal growth	Absorption	High	Low
B Lufthansa - Swiss	High	High	Horizontal growth	Symbiosis	High	High
C Global Inc - World	Low	High	Vertical growth	Preservation	Low	High
D Virgin Group Ltd - EBA	Low	Low	Conglomerate	Holding	Low	Low

**Table 2: Synopsis illustrative vignettes**

The decisional dimension in table 2, autonomy and interdependence, the two determinants of Haspeslagh and Jemison's (1991) M&A approach types, overlap with the integration dimensions innovation capability and synergy capability in figure 4. Where knowledge integration is linked to innovation and autonomy and IS integration is linked to synergy and interdependence.



**Figure 4: Illustrative vignettes in the M&A Framework**

## 6 THE MERGER OF AIR FRANCE AND KLM

The strategic and temporal perspectives are used to provide background information on the Air France – KLM merger. The description is based on annual reports, corporate websites information and news articles available on the internet. Then the interview result is provided.

### 6.1 Strategic Perspective

The main reason for the Air France- KLM merger seems to be, from a public communication perspective, operational efficiency and increased marketing position. Air France and KLM expected profits to increase by \$450 million to \$550 million after five years as a result of cost savings, rescheduling of routes and improved fleet utilization (operational synergy). As Europe’s largest carrier they would be able to grow more rapidly at less expense.

Air France - KLM was in 2009 the largest airline company in the world in terms of total operating revenues, and also the largest in the world in terms of passenger-kilometers in a structure as one group (holding), two airlines (Air France, KLM) and three businesses (business units: passengers, cargo and engineer & maintenance). Each airline has retained its individual identity, trade name and brand. Both airlines run their own operations from their hubs Paris-Charles de Gaulle and Amsterdam-Schiphol. A strategic management committee (GEC) coordinates overall strategy, finance, commerce, technology, information technology, procurement and fleet development. The airlines coordinate schedules, fares, frequent flier program, lounge access, cargo operations and revenue management. They adjust networks, schedules, have joint product development, joint purchasing and joint staff training.

Factual information

In 2009 Air France - KLM jointly served 74,5 million passengers, earned 24 billion Euros in turnover for 08-09, employed 110,878 employees and owned 635 aircrafts.

<b>The holding consisted per 2009 of:</b>	
100 percent of Air France, including the subsidiaries:	France Brit Air
	Republic of Ireland CityJet
	France Régional
	Belgium VLM Airlines
97 percent of KLM including:	KLM cityhopper
	Martinair
	Transavia.com, including Transavia.com France.
And the 100% subsidiaries:	KLM Health Services
	KLM Equipment Services
	KLM Catering Services
	KLM Facility Services
	100 percent of Air France Cargo and 97 percent of KLM Cargo.
	100 percent Air France Industries and 97 percent KLM Engineering & Maintenance.

The holding has several participating shares in other airlines, like Kenya Airways (26 percent), Alitalia (25 percent) and has a participation in WAM Acquisitions (23.6%) owner of the Global Reservation System (GDS) Amadeus.

Air France – KLM is a member of the strategic SkyTeam alliance. SkyTeam has 9 full members and 2 associate members. It is the second largest airline alliance in the world, after the Star Alliance.

## 6.2 Temporal Perspective

In the pre-M&A phase KLM was searching for a suitable partner to secure the future for the airline in an expected period of deregulation and consolidation. In 2000 KLM broke with Alitalia as strategic alliance partner after a period of one and a half year of alignment of operation. A merger negotiation with British Airways (BA) was not successful. No information in public media has been found on pre merger negotiation between KLM and Air France, that is, before the transaction was publicly announced in 2003. The transaction phase started on 30 September 2003, where Air France and KLM announced the merger through a share exchange, and an agreement for KLM to join the SkyTeam alliance. In May 2004 the merger was completed after a successful share exchange, with the creation of the Air France-KLM Group, the holding company in which both airlines took part. Air France, at that time owned for 54 percent by the French government, used its shares to take over KLM and paid \$913 million to acquire 80 percent of the shares in KLM. This was 40 percent above the KLM's shares trading before the deal announcement. KLM owned about 19 percent of the new company. The Air France - KLM holding company owned 100 percent of Air France but only 49 percent of KLM for the first three years. KLM shareholders received 11 new shares for every 10 KLM shares, plus warrants for additional shares until early 2008 and the deal promises an injection of \$706.4 million (€600 million) of new capital into the firm. In December 2004 the French State sold 18.4 percent of its equity stake in the Air France-KLM Group.

For five years, the new company offered KLM stockholders "assurances" that the two brands would remain separate and intact. For eight years, the company guaranteed to the Dutch government that the Paris and Amsterdam air hubs would be treated as a dual-hub system in a "fair" manner. For three years, an additional class of voting, non-economic stock would be created and split between the Dutch government and two Dutch foundations, which together would have 51% of the voting rights over the KLM subsidiary (but not Air France or the holding company).

The deal required approval from the European Commission and the US aviation authorities. Soon after receiving the approvals, in April 2004, Air France launched a public offer to exchange all the existing ordinary equity shares of KLM. The offer was successful as 89.2% of the shares were tendered by KLM shareholders.

In the post-M&A phase the two airlines continued to operate as separate companies from their bases in Paris and Amsterdam. They established a structure rather than a full-scale integration of the two airlines in order to safeguard KLM's international traffic rights under its 1992 agreement with the US aviation industry. Under rules governing covering routes and landing rights for national carriers, ownership and control must be the same nationality as the aircraft's flag or registration. The EU already started to negotiate air travel treaties (open skies) that would cover the entire 15-nation union rather than work on a country-by-country basis. New treaties would make the need for partial Dutch control obsolete. In March 2008 the EU-US Open Skies Agreement became effective, which allows any airline of the European Union and any airline of the United States to fly between any point in the European Union and any point in the United States.

Currently in 2009 KLM is for 97 percent owned by the Air France – KLM holding. It is not known from public accessible information if IS was part of the due diligence and if integration was on the strategy agenda.

In the next section the interview results are presented following the M&A framework dimensions, respectively the decisional and the market- and organizational integration dimensions. Were IS and knowledge are part of the organizational integration. Note that text in quotes is a literal expression of a participant. Section 6.3.3 provides a synopsis and the plotting of the data in the M&A framework in the same way as is used in the illustrative vignettes.

### 6.3 Decisional dimensions

#### 6.3.1 The need for strategic interdependence:

The need for strategic interdependence from a corporate perspective was low at the beginning of the merger. Partly due to the complex shareholder construction to safeguard KLM's international traffic rights under its 1992 agreement with the US aviation industry and assure KLM stockholders that the two brands would remain separate and intact. The strategy chosen by the top management was "cooperate, harmonize and integrate". Although, on operational level synergy targets were the drivers for the first years of the merger. The first joint project for which the preparation started in the transaction phase, the integration of the Frequent Flyer programs into Flying Blue, was considered a case to the world to "show that AF and KL could work together in a good way". Flying Blue was a project in the scope of the Commercial Organization in the Passenger business unit (BU). The interdependence for this BU was high from the beginning. This BU perspective therefore shows another level of interdependence than the corporate perspective. Which counts for the Cargo business unit as well: the Cargo interdependence was medium. From a business perspective it was high, but from a system perspective it was low: "Cargo ( ) set up a common organization. For me it means that a common organization can not solve everything. There are a lot of difficulties to reach a common model. Because it is smaller it is more difficult. They have to migrate to one legacy system. But it is a very huge program and we do not know if the business can afford it. ( ) They prefer to bridge it. The system is following the business model."

#### 6.3.2 *The need for strategic autonomy:*

Did the top management decide on the level of autonomy for the two airlines? Yes: "in the five year plan of 2004, to let people get used to the idea, not to paint the airplanes or change the logo's, the brand or sensitive items like uniforms. They wanted to take the time". In the beginning of the merger and on a corporate level it was chosen to slowly change the level of autonomy. Now five years later the integration is moving to a final stage "( ) to finalize the total merger, it means only one business model for the two companies, only one network, one ticketing, plate and so on". For all the subsidiaries autonomy is high, no integration is started, except for Transavia which penetrated the French market with low cost product. In 2009 the autonomy on the corporate level might be therefore overall be qualified still as medium.

On the Commercial Organization in the Passengers business unit autonomy might be labeled as medium as well: integrated management for the sales, marketing, network and revenue management departments. Controlling and information management still have separate management teams one for AF and one for KL and a different way of managing "within KL management information is the responsibility of controlling, where within AF the commercial director is responsible. Also the function of controller is different, for AF the controller focuses only on costs, where a KL controller focuses on revenue and costs."

The autonomy within the business unit Cargo might be qualified as high: the business is integrated and shows one proposition to the market, but still both airlines follow their own business rules, supported by their own legacy systems, were the different business rules still apply. "( ) there are a lot of difficulties to reach a common model. KL believes to save costs the way the packages are transported and AF believes revenue management is more important as revenue driver". They have split the market based on the network "in case in Amsterdam a cargo is delivered then it depends on the destination and the network which carrier is taking it. There is no confusion or discussion on who is serving which customer".

## 6.4 Integration dimensions

### 6.4.1 Market integration

The rationale for the merger mentioned by the interviewees in short are (100% = 20):

- Survive (20%)                      – Volume (15%)                      – Synergy (20%)                      – Network (20%)
- Competition (10%)                – Market share (10%)                – Cost saving (5%)

Were volume and market share might be considered the same, synergy and cost saving also and competition might be linked with survive, which results in survival (30%), volume (25%), synergy (25%) and network (20%). Were network and volume/ market share is closely linked: “enlarge network”.

Some quotes “strategic, twofold: KLM defensive, AF enlarge network, market share. Together become stronger. Costs advantages, but also extra revenue”. “probably there are a number. 1) mass, size, together being big, 2) cost savings, 3) distance to the direct competition. I would say more synergy than innovation.”, “they would lose in the field of forces of the traffic flow of Europe compared to Lufthansa with Swiss with Munich and Frankfurt development and the Star alliance”, “absolutely no take over for the systems by the taking over party. It has more to do with to be a big airline with slots and network, that’s where the value is. The systems are corpses in the closet.”, “in first instance the IS was not the driver for the merger, it had to do with searching for scale and markets.”

Other factors contributed for KLM to choose Air France as partner: Air France was the best partner “based on the fact that AF and KL have the same monetary union, ( ) the same social system, trade unions, work counsels, ( ) French create situations, take a look at infrastructure of auto routes, payment traffic, airports. ( ) where working together with NW would still be possible with AF, AF was working together with Delta. ( ) and last point, when you work together with CDG, than you may strengthening the position of Schiphol and CDG.”

Air France and KLM expected profits to increase by \$450 million to \$550 million after five years as a result of cost savings, rescheduling of routes and improved fleet utilization.

Translate these rationales into horizontal, vertical or conglomerate growth strategies it might be concluded that horizontal growth (volume, market share) to survive in the field of competition was the main driver for the merger, followed by synergy, business synergy to be precise. In the interviews synergy was mentioned several times in the context of IS, but also in relationship with the business context. Synergy targets are estimated during the due diligence “There are two phases: 1) due diligence, analyze the existing IT environment, IT contract, IT costs, etc. 2) propose a real plan. It will cost that much for gaining this amount of synergy. Every time you have several groups for the different processes. And each one of this group to have to present their own industrial plan. At the end all these plans is the expected total synergy. At that time the CIO is to say I can put that to the table to buy that company. It is pure financial at that but of course there are much more factors”. The relation between business and IT synergy is expressed by “if you look IT synergy is very little compares with business synergy. You are not able to buy a company based on IT synergy. Really it is good to have IT synergy in the end, but it is more important to contribute to business synergy.” And another participant “in IT systems it is not about synergy. The costs you make to integrate are much smaller than the possible revenues you may loose in case something goes wrong or functionality you do not have”. And “so eventually very big decisions have been made with a lot, lot of impact on commercial in the business, in the back office, but we didn’t sell a ticket more for that ( ) we needed to pass that phase due to the choices made, well the synergies have been made and are communicated. That is good, at that moment the commercial environment was good, should we have it now, with the current crisis, we would have had an enormous risk, we wouldn’t not do some things and that gives the impact of the choice an IT system can have on the execution of the commercial policies.”

On the corporate level Transavia and Martinair are example of vertical growth “Transavia or Martinair have different business model”. On the passenger business unit of Air France and KLM the main target

was horizontal growth: market share, volume in the network to survive. For Cargo both horizontal growth, “you need a large network”, but also to move forward in the service chain “we will arrange the logistic process for you, ( ) better use of the network, fast delivery of products, other products.”

#### 6.4.2 *Organization integration*

According to the participants of the interview there are several perspectives you may use the M&A framework: from a corporate perspective to a business unit and system perspective. The corporate level is seen as a holding construction “one group, two airlines, three businesses”.

Overall the idea of KLM manager in the Commercial Organization of the Passenger business unit is that the merger started with absorption and changed in time to symbiosis “absorption (feeling and ask average KL colleague for the commercial domain, all AF systems, but also examples of how it wend different and moved to more symbiosis, like the new revenue management system”, “original absorption in the commercial domain. ( ) slowly moving to a part of symbiosis, it is a trend, first we decided on the system perspective, but then we moved later to a business leading perspective: which system is mapping best for the business process. The emphasize later was more on the best system, more symbiosis”, “Overall it is  $\frac{3}{4}$  of absorption and  $\frac{1}{4}$  of symbiosis. AF build in the KL intelligence of commercial in data structures, it took time but the whole coupon basis is created based on our audits and implemented, it was something AF would never have done, or could have done because there was no meaning for it, so in my opinion we brought KL dna into the AF systems, so it is not a total absorption”.

For Cargo it is clear that the business was on the track of symbiosis, but on the system level it finds itself in the preservation quadrant “Cargo two separate systems with a portal of it: use the model to business models, you can use it the same. Using the best of the two. They prefer to bridge it. The system is following the business model. You can have both systems if you reach one business model.”, “the autonomy of workers here is much higher, that has to do with initiative in the Dutch culture, in case you see here something on the floor and it has to go to NYC than we move it in and rearrange the pallets. That is in CDG not common. The station handling is preservation, where stations did integrate it is more symbiosis. It also has to do with slots, like in the USA, are cargo offices part of the JV, there you see more symbiosis”.

From a system perspective all sort of integration types can be found. “Preservation: on catering for instance on the hub Schiphol, you see that they separated are linked to the reservation systems, balanced in bridges. There it is possible that you have a crew planning system in another CAO regulation, which you will not join to one. Also symbiosis is present, the best system out of two: because one says that it is more easy to take of the selves to fulfill 90% of the needs than make a mess on your own to build one or we go to the AF system. Holding is present as well: that you say we have a certain development but that is to expensive for now. Absorption: methodology, financial accounting has been imposed to how AF wants to have reports.”

#### 6.4.3 *IS integration*

All four types of system integration may be identified in the merger of Air France – KLM:

- Systems of the acquirer are used: the sales systems and Frequent Flyer systems of Air France are used by KLM.
- Best systems of both are chosen or new systems have been selected or build: the reservation system, the revenue management system and the revenue accounting system are all new selected systems. The reservation system and revenue accounting systems are provided by industry partners, the revenue management system, which is normally an asset of competitive advantage is newly build in house.
- Bridges: in the business unit Cargo a portal (bridge) has been build on top of the Air France and KLM legacy transactional systems, so that both airlines are able to share transactional information at the same time.

- Periodically synchronization of systems: management information is an example of synchronization of systems. Information is exchanged and processed in batch to have on both sides some of the same steering information.

As identified in the previous paragraph the relationship between business and IS (often referred to by business people as IT) is strong. Using a methodology of “coloring and clustering or carpeting” the IS systems in Air France – KLM were colored into a light bleu domain (KL) or a dark bleu domain (AF) depending on criteria settled by a joint effort of the business-, information management (IM)- and IT departments on both AF and KL sides. It was a bottom up process for the Commercial Organization in the Passenger business unit and a more top down process in the Cargo business unit.

In the Commercial Organization decision were made to color several systems dark blue by IM and IT, however the KL business would loose business functionality therefore development was made to build in KL functionality in the systems next to AF business functionality. That was before the business rules integration got the focus. Gradually a focus to move to one business model took place. So the discussion changed from which system to be use to which business rules to be used “It means that if one system will be chosen the business model supported by the system will be chosen as well. It was not clear for the group for the companies that we had to go to one business model”. The system integration on the commercial organization is high: per 2009 almost all systems are integrated or projects are on track to integrate the systems. “IS plays a major role in the merger conversion”.

On Cargo the system integration is troublesome. The decision on the selection of which system to be used of both legacy of AF or KL or new build has not been made; the project was on hold in 2009. “Two possibilities in a merger: you can decide to get rid of the legacy and go to one. It is easier to go to a new one. But it needs common processes. Otherwise you can start with quick win, fast track and we can do something in common based on legacy. Cargo phase one it was this way. It brings not so much synergy, the merging is very costly. Spend time to rebuild legacy system. Not so much time to market.” Only bridge are available in 2009, facilitate portal functionality so that AF staff is able to see reservations in the KL systems and visa versa. It is difficult to decide on an approach for the integration due to the costs involved and the business rules integrated in the systems “if you pull a part of the system then you will pull the whole part of it, which you can not replace one by one. That is impossible, that is to troublesome, that is why it is a hell of a job to perform step by step the integration”.

On the corporate level IS integration is low. There are no examples mentioned of IS integration on corporate level, except for the financial and management reporting.

#### 6.4.4 *Knowledge integration*

Was there knowledge integration in the Air France – KLM merger? Of course: integrate business or IS or any other field where integration takes part, knowledge is transferred and exchanged as byproduct. For the business it concerns business rules for IS it concerns knowledge of business functionality (transactions, decision support, strategic IS), normally closely related to business rules, next to infrastructure, on which more technical knowledge exchange is required.

Examples of all types of knowledge are identified:

- New knowledge: “For innovation it was very positive, we learned from each other as I mentioned. One pushing and the other one following. ERP much more rely on software on the selves. Interesting for AF to look for it. Today AF say we have nothing to do with cloud, KL is pushing to that direction it helps us to change. This is good. On the opposite side AF give KL to structure, solid, have a robust and agile system, with strong architectural goals, more standard, time to market..”
- Complementary: integration of KL O&D (Origin and Destination) revenue management steering method with AF Point to Point steering method, since KL has a greater need to steer on O&D as a

large percentage of traffic is network related, where AF domestic traffic (point to point) was important.

- Similar: the way of managing and organizing the business, management information and IT interaction was and is more or less the same: “KL was same as AF: same strategy, IT is important to business, dedicated people to deal with IT”.

On corporate level financial knowledge to consolidate the financial results of the two airlines and subsidiaries is required. Furthermore strategic management capabilities are required to direct the daughter companies, and to work together. Medium knowledge integration is the logic knowledge integration type on corporate level: on the one hand explore new domains, on the other hand less involvement in the day to day knowledge exchange in the operation. On corporate level knowledge and experience on how to manage a merger is shared and exchanged.

On the business unit level, the Passenger Commercial Organization, also the knowledge integration may be characterized as medium: in projects knowledge was shared and exchanged on business related topics, like business rules, IS functionality, technology, but also on human behavior related items, like culture, language, how people interact with each other. “AF – KL merger we discovered that it was very profitable for AF, because AF was used to work internally to reinvent internally, less contact outside. It was very difficult to challenge the way of working inside, everybody competitors keeps the information inside.” A do’s and don’t list circulated and an intranet website was launched where tips and tricks were exchanged and interviews were published on how people experienced the merger in the day to day practice. On this platform also best practices were shared. At the beginning of the merger a high potential exchange program started: for 2 years ten AF employees worked within KL headquarter and ten KLM employees worked in AF headquarter in Paris: young promising talent with the aim to learn from each other. Several other initiatives were proposed but due to complex labor rules in both countries it was difficult to bring them in practice. Joint corporate values were communicated “learn, trust and respect”.

Cargo may be characterized as highly knowledge integrated business unit: one management for AF – KL from January 2005 on. Business rule knowledge is exchanged, knowledge on IS is shared. Cargo was the first integrated business unit in the Air France – KLM group and functioned as example of a successful integration.

Overall in the working together mode a critical success factor is relationship management. Several interviewees referred to the importance of soft human factors. Some quotes on this topic. “To create support in the organization, that is in case of renewal, on innovation, is paid in general to less attention. The human aspect. Was there enough attention for the creation of acceptance level, and I think, that this was not the case. With impact on slowing down the process.” “The core of success: 1 good relationship with your counterpart, good contact, which doesn’t mean to agree with everything. Take your time. Then a long time nothing, and then business process alignment, then ICT, integrate systems, where the relationship is important again, since if you want to select the best system, that is possible in case you have the process, then you need to admit that, that is the best system. It is not easy. Then execution. To have the best people, to get the best people to your company.” “The type of function is important. Sales people are flexible, easy in adjusting (camelions). The dna of people. For specialist it is more difficult.” “The entrepreneurship of KL, flexible, agile, pragmatic. AF may use that. French people are thorough. They better thought about mixing the cultures.”

## **6.5 Air France- KLM in the M&A Framework**

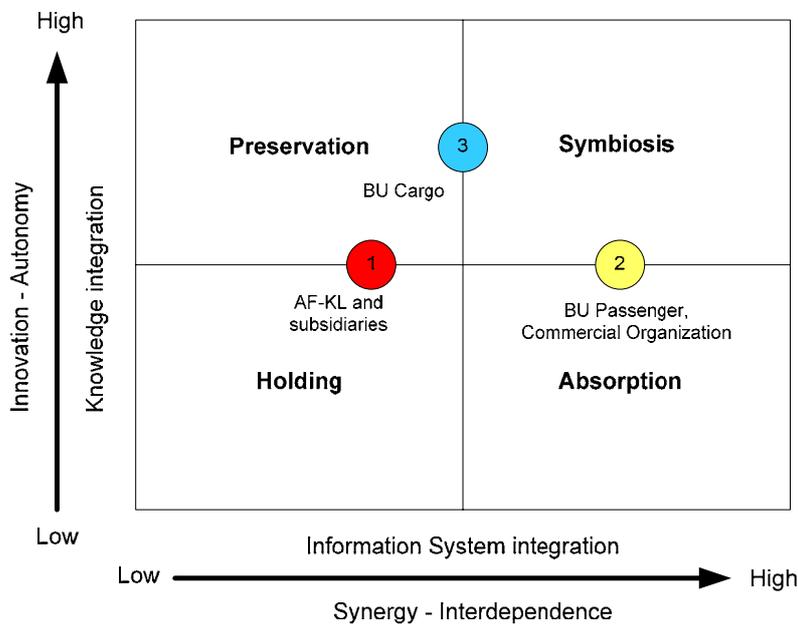
Several perspectives are possible using the M&A framework, a corporate level, business unit level, system level, product portfolio, markets, etc. The quadrant model is a simplification, in the real world there are simultaneously so many factors that the dimensions may explode. Each of these perspectives may be used separately or in combination, which depends on the context the analysis and thereby the plotting is performed. Another important aspect is the time factor: in time the configuration may

change as is illustrated by moving from an absorption approach to a symbiosis approach as was experienced by KLM staff.

Based on the results of the interviews, conducted in 2009, we were able to plot the corporate and business unit perspective (see figure 5) and the IS perspective (see figure 6) in the 2 by 2 matrix, the quadrant model. Tables 3 and 4 contain a summary in textual format.

	Business Unit (BU)	Decisional dimension			Integration dimension		
		Inter dependence	Autonomy	Market	Organization	IS	Knowledge
1	AF-KL and subsidiaries	Low	Medium	Horizontal and vertical growth	Holding	Low	Medium
2	Passenger, Commercial Organization	High	Medium	Horizontal growth	Absorption/ symbiosis	High	Medium
3	Cargo	Medium	High	Horizontal and vertical growth	Preservation/ symbiosis	Medium	High

**Table 3: Holding and BU perspective 2009, five years after the merger**

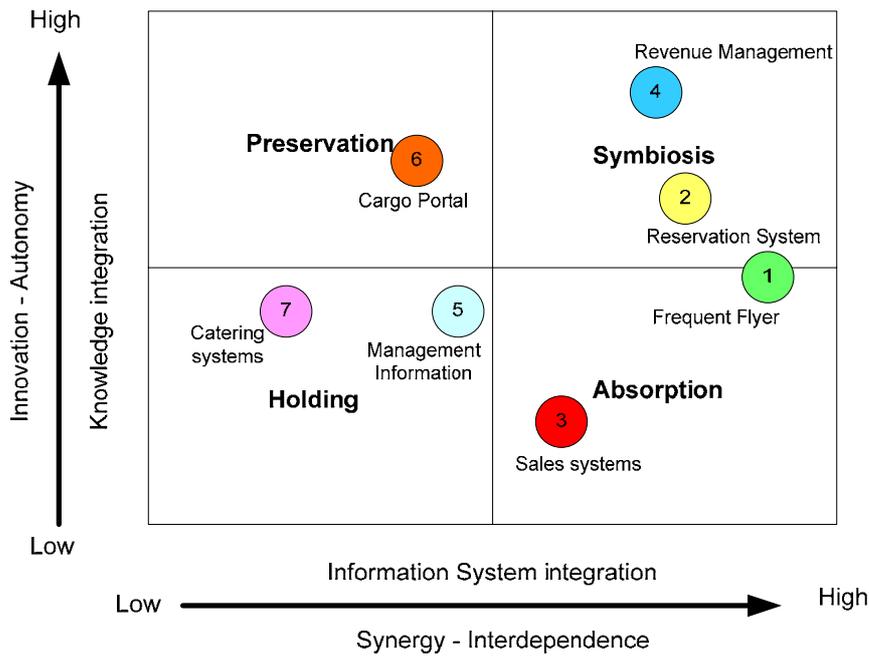


**Figure 5: Holding and BU perspective 2009, five years after the merger**

Below examples of integrated (or projects started to integrate) systems are plotted in the framework. It shows that the M&A framework may be used for all possible perspectives. For this system integrated perspective only the IS and knowledge integration dimensions are relevant.

System	Integration dimension	
	IS	Knowledge
1 Frequent Flyer	High	Medium
2 Reservation system	High	High
3 Sales systems	High	Low
4 Revenue management	High	High
5 Management Information	Low	Low
6 Cargo Portal	Low	High
7 Catering systems	Low	Low

**Table 4: System integration perspective 2009, five years after the merger**



**Figure 6: System perspective 2009, five years after the merger**

## 7 DISCUSSION

We discuss the results of the case study, recommend directions of further research on this topic and address the limitation of the study.

There is no clear set of usage of the term M&A, merger or acquisition in literature, there are several opinions and statements on the definition of merger and acquisition. We propose to refer in the research domain always to M&A in case there is no need for distinction and the phenomenon can be studied as one. In case an explicit distinction between merger and acquisition is required we propose to use M&A integration strategies as reference to merger or acquisition. The way companies will be integrated has implications for the legal form they will have and therefore the integration strategy can be used to set clear definitions. We propose to use the term merger in case the M&A organization integration type is based on symbiosis and preservation and to use acquisition in case the M&A organization integration type is based on absorption.

The position in the framework of the goal of M&A, visualized by the axes innovative (knowledge) and operational capability (synergy), is supported by the Air France – KLM case.

Our finding is that integration decisions need to be made in all three M&A phases, but preferably in the pre-M&A phase. Following that the integrated has implications for the legal entity of the involved firms and the impact integration has on achieving the M&A objective. In the pre-M&A phase the role of IS integration must be defined and should be aligned with the business integration plan. In the pre M&A phase the framework may be used for a high level, strategic, goal driven perspective and to identify the consequences for the organization. Which firms are suitable? Which market approach? Which growth ambition? What motive: innovation, synergy or both? Does it concern a merger or an acquisition? Are there different strategies per business unit? The framework may be used in the transactional M&A phase as a guide to prepare the integration decisions on tactical level. In the post-M&A phase the framework may be used to support the decision making on an operational level, like what is more important, knowledge or synergy? Which systems, existing or new? The framework might serve as a tool to monitor the status against the original approach.

The decisional dimension in the framework, with the two factors autonomy and interdependence, provides direction in the way the integration will take place. This dimension is closely related with the goal of the M&A: innovation and/ or synergy. In the framework we link knowledge and IS integration types with innovation and synergy (high and low). Viewing the results of the vignettes and the Air France – KLM case, we see that the score on high and low of autonomy is the same as the score on knowledge and the score on interdependence is the same as the score on IS.

The integration dimension in the framework, with the market and organization perspective, provides direction for managing the activities of integration. This dimension is also closely related with the goal of the M&A: innovation and/ or synergy. We introduced the M&A integration ideal types. On a high level of analysis the ideal types rather fit in real live. The results of the case study of Air France – KLM supports this statement, taking different units of analysis (corporate, BU or system perspective) still the ideal types are useful to describe and explain.

The role of IS in M&A, the topic for this study, may be different for each unit of analysis, taking the ideal types as the guideline to manage successfully the M&A. IS integration, seems to be strong associated with operational capability: the higher IS integration the more synergy. However on the axe of innovation IS plays a role as well to support knowledge exchange with selection of best systems or bridges. Therefore we propose:

Proposition 1: in case of a synergy goal of M&A, IS plays a role as integrator.

Proposition 2: in case of an innovation goal of M&A, IS plays a role as enabler.

The propositions must be considered as suggestion for further research. They are preliminary findings, not yet operationalized and/ or proven to be false or true. Further research, like quantitative analysis, is required to transpose the propositions in hypothesis. Further research will conclude the role of IS in M&A, which on the one hand will support managers in practice to make integration decisions, and on the other hand will support information study scholars in their research to identify the value of information systems in M&A.

Both M&A and IS are complex phenomenon and it is therefore impossible to have an all inclusive analysis to describe, explain and predict IS integration factors in M&A environment. Therefore we focused on, what we think are some core concepts, relate these concepts in a framework and describe and explain some of its characteristics. The identified concepts may be in later research be transformed in constructs (first and second) so that it is possible to operationalized the relationship between the concepts (define dependent and independent variables) and falsify. Quantitative study and statistical analysis is required to validate the framework and make generalizations.

Of course it is possible to identify numerous limitations for this study. Generalization of the findings is not possible. First this study is qualitative and must be considered, within the frame of scientific research, as exploration of possible concepts, constructs, relevant for information studies. Quantitative analysis is required to generalize the findings. Next, in spite of our throughout literature study, which is documented and may be reproduced to prove to be solid, still the case study with a limitation of eight interviews, may not be seen as throughout certificate of validation of the theory elaborated in this study. Therefore further research is required, preferably quantitative, to validate the constructs and the propositions asserted. We consider the propositions as valuable starting point of further research.

## 8 CONCLUSION

As of the topic of this study is the role of IS in M&A, we may conclude that this role can not be seen independent from a set of strategic, structural and contextual dimensions. Typology serves as a solution to cover all the important constructs and relationships. Our typology is integrated with, what we label, M&A framework.

Both M&A and IS are complex phenomenon and it is therefore impossible to have an all inclusive analysis to describe, explain and predict IS integration factors in M&A environment. Describe, explain and predict are the core activities of scientific research. For this research we focused on the activities describe and explain, using typology to develop theory and communicate the findings via the more accepted and popular term framework. Prediction is only possible after validation of the constructs, (inter) relation of the constructs and generalization. Prediction of the success factors of M&A, and in particular the role of IS, is therefore impossible to deduce from this study.

However we still were able to analyse and found a valuable description (the framework) of the role of IS in M&A, which might lead to open up prediction, the Holy Grail of successful M&A. We think the formulated propositions provide a lead for further research to identify the Holy Grail of success of M&A.

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## **APPENDIXES:**

Appendix 1: Search methodology

Appendix 2: Interview protocol

Appendix 3: Interview results

## Appendix 1: Search methodology

\* Source system used: EBSCO Host; JSTOR; Springer, Wiley - Blackwell, Google Scholar

\*\* Key terms in search:

1	M&A and IS	}
2	(Merger or Acquisition) and IS	
3	IS and integration	
4	M&A and Integration	
5	(Merger or Acquisition) and integration	

Using Title, Subject Terms, Abstract and Author Keywords search functionality

\*\*\* All references in all articles found on key search terms M&A, Merger, Integration, IS strategy and Alignment, have been checked on relevance.

Journals	Long Name	Search method *
I&M	Information & Management	1990-2008: subject index search on key terms **
JSIS	The Journal for Strategic Information Systems	1991-2008: subject index search on key terms **
ISR	Information System Research	1990-2008: search on key terms **
JMIS	Journal of Management Information Systems	1990-2008: search on key terms **
EJIS	European Journal of Information Systems	1997-2008: search on key terms **
I&O	Information and Organization	2001-2008: search on key terms **
ISJ	Information System Journal	1991-2008: search on key terms **
JAIS	Journal of the Association for Information Systems	2003 -2008: search on key terms **
MISQ	Management Information Systems Quarterly	1990-2008: search on key terms **
AMJ	Academy of Management Journal	1990-2008: search on key terms **
Org Science	Organization Science	1990-2008: search on key terms **
JATM	Journal of Air Transport Management	1994-2008: search on key terms **
EJISE	Electronic Journal of Information Systems Evaluation	Article found via Google Scholar search
IJOPM	International Journal of Operations & Production Management	Article found via Google Scholar search
JFSR	Journal of Financial Service Research	Article found via Google Scholar search
LRP	Long Range Planning	Article found via Google Scholar search
SMJ	Strategic Management Journal	Via reference in paper ***
JIBS	Journal of International Business Studies	Via reference in paper ***
JM	Journal of Management	Via reference in paper ***

JMS	Journal of Management Studies	Via reference in paper ***
Bus Horizon	Business Horizon	Via reference in paper ***
Org Studies	Organization Studies	Via reference in paper ***
Org Dynamics	Organization Dynamics	Via reference in paper ***
Man Science	Management Science	Via reference in paper ***

Papers used for this study:

Author	Year	Journal	M&A term used in paper	Main Subject
Ahuja and Katila	2001	Strategic Management Journal	Acquisition	Innovation performance
Birkinshaw	1999	Business Horizon	Acquisition	Integration of knowledge
Bresman et al.	1999	Journal of International Business Studies	Acquisition	Knowledge transfer
Graebner and Eisenhardt	2004	Administrative Science Quarterly	Acquisition	Seller perspective
Harrison et al.	1991	Journal of Management	Acquisition	Synergy
Haspelslagh and Jemison	1991	Free Press	Acquisition	Value, decision and integration
Puranam and Srikanth	Forthcoming	Strategic Management Journal	Acquisition	Technology acquisitions
Puranam et al.	2006	Academy of Management Journal	Acquisition	Technology acquisitions
Puranam et al.	Forthcoming	Organization Science	Acquisition	Structural integration
Ranft and Lord	2002	Organization Science	Acquisition	Acquiring new technologies and capabilities
Vaara	2003	Journal of Management Studies	Acquisition	Sense making
Vermeulen	2005	Sloan Management Review	Acquisition	Revitalize companies
Vermeulen and Barkema	2001	Academy of Management Journal	Acquisition	Revitalization effect of acquisition
Merali and McKiernan	1993	Journal of Strategic Information Systems	Acquisition - M&A	Role of IS/ IT and Planning
Buck-Lee et al.	1992	Information & Management	Corporate Acquisition	IT fit
Zollo	Forthcoming	Organization Science	Corporate Acquisition	Superstitious learning
Zollo and Singh	2004	Strategic Management Journal	Corporate Acquisition	Deliberate learning
Björkman et al.	2007	Journal of International Business Studies	Cross boarder acquisition	Capability transfer
Giacomazzie et al.	1997	Information & Management	M&A	IS integration
Henningsson	2007	System Science Conference	M&A	IS integration
Henningsson and Carlsson	2007	Management Conference	M&A	IS integration managerial view
Mehta and Hirschheim	2004	System Science Conference	M&A	IT integration decision making
Stahl and Voigt	2008	Organization Science	M&A	Cultural difference

UNCTAD	2000	United Nations	M&A	World wide investments
Weber and Pliskin	1996	Information & Management	M&A	IS effectiveness
Weber et al.	1996	Management Science	M&A	Cultural fit
Zollo and Meier	Forthcoming	Academy of Management Perspective	M&A	Performance
Brown and Renwick	1996	Database	M&A/ Corporate Acquisition	IS alignment
Arlanta	2005	Electronic Journal of Information Systems Evaluation	Merger	IS integration
Epstein	2004	Organization Dynamics	Merger	Success drivers
Johnston and Yetton	1996	The Journal for Strategic Information Systems	Merger	IT integration
Stylianou et al.	1996	Information & Management	Merger	IS integration success
Vaara	2002	Organization Studies	Merger	Narratives
Wijnhoven et al.	2006	The Journal for Strategic Information Systems	Merger	IT alignment
Arlante and Henningsson	2007	System Science Conference	Merger - M&A	IS strategic planning
Yoo et al.	2007	Information System Journal	Merger - M&A	Knowledge sharing
Graebner	2004	Strategic Management Journal	Merger and Acquisition	Value creation in integration
Linder and Crane	1992	Journal of Financial Service Research	Mergers and Acquisition	Financial performance
Mehta and Hirschheim	2007	Journal of the Association for Information Systems	Mergers and Acquisition	IS integration decision
Robbins and Stylianou	1999	Information & Management	Mergers and acquisition	IS capability
Earl	1993	Management Information Systems Quarterly	N/a	IS strategic planning
Gulati et al.	2005	Strategic Management Journal	N/a	Differentiation and integration
Henderson and Venkatraman	1993	IBM System Journal	N/a	Integration model
Segars and Grover	1999	Information System Research	N/a	IS strategic planning

Papers found but not been used for this study:

Author	Year	Journal	M&A term used in paper	Main Subject
Hunt	1990	SMJ	Acquisition	Context and process
Cannella and Hambrick	1993	SMJ	Acquisition	Departure of executives
Pablo	1994	AMJ	Acquisition	Integration Decision Making
Paruchuri et al.	2006	Org Science	Acquisition	Knowledge integration
Calori et al.	1994	Org Studies	Acquisition	National culture
Birkinshaw et al.	2000	JMS	Acquisition	Post acquisition integration
Seth	1990	SMJ	Acquisition	Value creation efficiency
Capron	1999	SMJ	Horizontal acquisition	Acquisition performance
Dixon Wilcox et al.	2001	I&M	M&A	Market valuation

Schweizer	2005	AMJ	M&A	Organizational integration
Lubatkin et al.	1998	Org Science	Merger	Cross cultural
Sweiger and DeNisi	1991	AMJ	Merger	Employee communication
Chatterjee	1991	AMJ	Merger	Gains
Finkelstein	1997	SMJ	Merger	Interindustry merger
Leroy and Ramanantsoa	1997	JMS	Merger	Learning
Trautwein	1990	SMJ	Merger	Merger motives and strategy
Very et al.	1997	SMJ	Merger	Post merger performance, culture and autonomy
Greenwood et al.	1994	Org Science	Merger	Strategic and organizational fit
Hitt et al.	1990	SMJ	Merger and Acquisition	Managerial commitment
Walter and Barney	1990	SMJ	Merger and Acquisition	Managerial goals and objectives
Datta	1991	SMJ	Merger and Acquisition	Organizational fit
Datta et al.	1992	SMJ	Merger and Acquisition	Wealth creation
Larsson and Finkelstein	1999	Org Science	Mergers and Acquisition	Synergy realization
Rheaume and Bhabra	2008	I&M	Mergers and Acquisition	Value creation
Uhlenbruck and De Castro	2000	AMJ	Mergers, Acquisition	Critical managerial issues
Chatterjee	1992	SMJ	Takeover	Synergy and restructuring

## **INTERVIEW GUIDELINES AND PARTICIPANTS**

Interviews may be conducted in several ways, using different methods and techniques. Below a list of important preconditions for the, to be conducted interview in the scope of the case study Air France KLM, is given (based on recommendations of Mitman-Colker, Spickard):

- Maximize the interview to 60 to 90 minutes.
- Ask neutral questions, do not approve or disapprove answers, avoid the implication of any preconceptions or bias of the interviewer.
- Ask open-ended questions, encourage in-depth responses, limit closed-ended questions.
- Use supportive words to give the participant the feeling that there are no wrong answers.
- Be patience, provide positive feedback (nodding), and be attentive.
- In case time is required to formulate a question explicate this.
- Wait for several seconds after the participant finishes an answer, which signals that you are giving him or her time to think of additional information.
- Try to use the phrases the participant used at moment details questions are required.
- Follow intuitive line of questioning to create an atmosphere of natural flow.
- Group questions logically by topic area and elucidate these areas to the participant.
- Within each topic area, begin with the most important information questions and save more sensitive or opinion questions for later.
- Begin with a topic area that is central and straightforward, followed by topic areas that are more complex; end with a simpler topic area and invite additional comments.
- Anticipate on detailed answers; allocate average of 3 minutes per question (90 minutes interview may consist of a maximum of 30 questions).
- Take care that interview has a clear start and ending.
- Pilot the interview.

To gather relevant information relevant participants need to be interviewed. To validate the framework about the role of information systems in M&A the merger of Air France KLM is used as case study. Key persons involved in the Air France KLM merger are invited to participate in the interviews. Two main dimensions have been identified in the framework: integration decisional and organizational integration. The scope of participants is limited to key persons in these two domains.

The participants of the interviews were part of the following organisation units of the Air France – KLM group:

- Air France – KLM International & the Netherlands (3)
- Commercial division KLM (4)
- Air France - KLM Cargo (1)

The functions of the participants of the interview were: vice president (3), director (1), general manager (1), controller (1), IT project manager (1), business and information architect (1).

The conducting interviewer works at the time of the interviews as Business Analyst in the department of Management Information Systems of Air France KLM. In this function the interviewer has participated in several information systems integration projects of Air France and KLM either in the role of management information analyst expert or project manager.

# INTERVIEW PROTOCOL

## Introductory Protocol

To facilitate note-taking, we would like to audio tape this interview. Only researchers on the project, me and my advisor will use the tapes which will be destroyed after transcription. We will leave you a copy of this document stating that: (1) all information will be held confidential, (2) your participation is voluntary and you may stop at any time if you feel to, and (3) we do not intend to inflict any harm. Thank you for your agreement to participate.

This interview will take approximate one hour.

## Introduction

You have been asked to participate for this interview, since you have been involved in a lot of information system integration projects in the Air France/ KLM merger. The topic of my research project is to find an answer on the role information systems integration plays in a merger and acquisition (M&A). We hope you will share your opinion with us on the role of information systems in M&A. It is valuable to have more knowledge about information systems and the integrative role they might have, since integration is one of the key factors for achieving successfully the goal of a merger or acquisition. To have more knowledge on this topic available will support other managers like you to make grounded decisions on M&A integration.

## A. Participant Background

1. Could you tell us in brief your background, where you're coming from, how you got here, what you do \_\_\_\_

Probe: How long have you been working in your present position? \_\_\_\_\_

At KLM? \_\_\_\_\_

2. What motivates you most in your daily work? \_\_\_\_\_

Probe: Could you give some examples of moments in your work where you have the feeling of satisfaction? \_\_\_\_\_

## B. Past: Information System and Knowledge Integration AF/ KL

3. How are (were) you involved in the AF/ KL merger? \_\_\_\_\_

4. What do you think is the main reason for the AF/ KL merger? \_\_\_\_\_

Probe: Could you name other M&A in the airline industry and why they merged?  
\_\_\_\_\_

Probe: Do you think the merger of AF/ KL has achieved synergy? So yes could you provide an example? \_\_\_\_\_

Probe: Do you think the merger of AF/ KL has achieved innovation? So yes could you provide an example? \_\_\_\_\_

5. Would you tell us some more about information systems (IS) in AF/ KL \_\_\_\_\_

Probe: What is the most notable example of IS in the airline industry? \_\_\_\_\_

6. Would you tell us more about IS integration in AF/ KL \_\_\_\_\_

Probe: Do you have an example of IS integration in the airline industry? \_\_\_\_\_

7. What do you think was the most important decision the IS integration concerned? \_\_\_\_\_

Probe: What kind of decision do you think need to be taken in M&A integration?  
\_\_\_\_\_

8. Is it possible to give an example of a new joint IS after the AF/ KL merger? \_\_\_\_\_

9. Could you give some examples for knowledge integration in the AF/ KL merger? \_\_\_\_\_

Probe: What kind of knowledge do you think is needed in M&A integration in the airline industry?  
\_\_\_\_\_

10. Do you think knowledge integration is important in M&A? So yes why or so no why? \_\_\_\_\_

### **Introduction and short explanation of the M&A framework**

11. Where do you think Air France – KLM are situated in this model?  
\_\_\_\_\_

### **C: Future: Vision**

12. Where do you think the company will be in 5 years? \_\_\_\_\_

Probe: Are you able to give an example of a company which succeeded to integrate successful?  
\_\_\_\_\_

13. What is the ideal situation of IS integration in the AF/ KL merger?  
\_\_\_\_\_

Probe: Should the system infrastructural (transactional, management information, strategy systems) be integrated in M&A? \_\_\_\_\_

14. What is the ideal situation of knowledge integration in the AF/ KL merger?  
\_\_\_\_\_

Probe: Should new (complementary, and/ or similar) knowledge be a result of M&A?  
\_\_\_\_\_

**D: Short Term: Next Steps**

15. What should be according to you the next step in the integration of AF/ KL?  
\_\_\_\_\_

**Finish**

16. We finished with the questions now. Before we end, is there anything else you think it would be useful to know?

Question	Time (minutes)
<b>Introduction</b>	2
<b>A. Participant Background</b>	
1 Could you tell us in brief your background, where you're coming from, how you got here, what you do	2
2 What motivates you most in your daily work? (question is removed and not asked in the interview)	2
<b>B. Past: Information System and Knowledge Integration AF/ KL</b>	
3 How are (were) you involved in the AF/ KL merger? How did you get involved?	4
4 What do you think has been the main reason for the AF/ KL merger	4
5 Would you tell us some more about information systems (IS) in AF/ KL	4
6 Would you tell us more about IS integration in AF/ KL	4
7 What do you think was the most important decision the IS integration concerned?	4
8 Is it possible to give an example of a new joint IS after the AF/ KL merger?	4
9 Could you give some examples for knowledge integration in the AF/ KL merger?	4
10 Do you think knowledge integration is important in M&A? So yes why or so no why? (question is removed and not asked in the interview)	4
<b>Introducing and explanation of the M&amp;A framework</b>	
11 Where do you think Air France – KLM are situated in this model?	4
<b>C: Future: Vision</b>	
12 When do you think IS integration in M&A has achieved its goal? Question is rephrased to: Where do you think the IS integration is within 5 years?	4
13 What is the ideal situation of IS integration in the AF/ KL merger?	4
14 What is the ideal situation of knowledge integration in the AF/ KL merger?	4
<b>D: Short Term: Next Steps</b>	
15 What should be according to you the next step in the integration of AF/ KL? (question is removed and not asked in the interview)	4
<b>Finish</b>	
16 We finished with the questions now. Before we end, is there anything else you think it would be useful to know?	2
	<hr/> 60

## Appendix 4: Interview results

### A. Participant Background

- 1 Background Interview results are anonymous therefore the background of the participants has been removed from the results.

### B. Past: Information System and Knowledge Integration AF/ KL

- |   |   |  |   |   |   |  |  |  |  |
|---|---|--|---|---|---|--|--|--|--|
| 3 | How are (were) you involved in the AF/ KL merger? How did you get involved? | Post M&A phase: Sales, BU passenger, commercial unit | Post M&A phase: Information Management, BU passenger, commercial unit                           | Transaction phase: Marketing, BU passenger, commercial unit   | Transaction phase: IT, cost center IS                                     | Post M&A phase: Sales, BU passenger, commercial unit         | Post M&A phase: Controlling, BU passenger, commercial unit                         | Post M&A phase: IT, BU Cargo                                 | Pre M&A phase: Sales, BU passenger, commercial unit  |
| 4 | What do you think has been the main reason for the AF/ KL merger            | 1) scale; 2) network; 3) survive long term           | KLM: defensive, AF 1) enlarge network; 2) market share  | Innovation is important aspect as well. first the synergy   | 1) volume; 2) costs savings; 3) competition; more synergy than innovation | KLM: survive; AF: network                                    | KLM: survive, synergy  | Network  | Volume; market share; synergy  |
| 5 | Would you tell us some more about information systems (IS) in AF/ KL        | System is mean to goal                               | System follows; IT is catalysis   | IS chosen then business model follows; IT is enabler  | KLM: demand (business) driven   | IS is enabler of business; may be hindrance, a risk          | System directs business  | Business is leading; IT decides on the how                   | IS strong enabler of business  |
| 6 | Would you tell us more about IS integration in AF/ KL                       | Commercial: Bottom up; Cargo: top down               | First emphasizes on IS integration then business integration. No plan, pragmatic; go and adjust | First emphasizes on IS integration then business integration. IS plays major role in merger, in conversion. | First emphasizes on IS integration then business integration              | First emphasizes on IS integration then business integration | IS prescribes business on DWH; still two different business models for controlling | First emphasizes on business integration then IS integration | IS leading business process. No concrete plan; philosophy: cooperate, harmonize, integrate |

7	What do you think was the most important decision the IS integration concerned?	Choice of resources; Business rule alignment; Joint MI.	Steer on relation; keep speed in the process; do not make plans	Same view on the business model and process	No turn back scenario for Frequent flyer project	To much focus on costs and organizational impact and not on commercial impact; no access to data no steering	Choice of AF DWH model; still two business models; vision all will be joint	Choice for AF as IS domain lead	IS integration process adjustment by Strategic Committee; develop tailor made Revenue management system
8	Is it possible to give an example of a new joint IS after the AF/ KL merger?	Commercial: Frequent flyer (old AF); Sales system (old AF); MI (old AF); Revenue system (new)	Commercial: Reservation system (new); Frequent flyer (old AF); Sales systems (old AF)	Commercial: Reservation system (new); Frequent flyer (old AF); Sales systems (old AF); Cargo: Portal on front end to bridge on old systems (new)	Commercial: Reservation system (new); Frequent flyer (old AF); Sales systems (old AF)	Commercial: Sales systems (old AF); MI (old AF)	Commercial: MI (old AF); Revenue system (new)	Cargo: Portal on front end to bridge on old systems (new)	Commercial: Reservation system (new); Frequent flyer (old AF); Sales systems (old AF)
9	Could you give some examples for knowledge integration in the AF/ KL merger?	KLM: entrepreneurship, flexible, agile, pragmatic; AF thorough, attentive to cultural aspects		KLM helps AF change to more innovation, more software from the shelf; AF gives KL structure, solid, robust and agile systems, architectural goals, more standard		Adjust to other business rules; combination AF and KLM is unique, it is complementary; you need to learn each others structure		Document knowledge in architecture tool; Experience and insights is difficult to documents; Know the people to contact	Merger an sich was innovative: concept of one group, two airlines and three businesses; position as normative airline

**Introduction and short explanation of the M&A framework**

11	Where do you think Air France – KLM are situated in this model?	KLM perspective: for commercial absorption; AF perspective: symbiosis	First absorption then move to symbiosis	Commercial: first symbiosis; Cargo preservation	Frequent flyer project: absorption. Broader: from all some; symbiosis (new revenue management system); preservation (E&M); holding (corporate level)	3/4 absorption; 1/4 symbiosis; first 2 years absorption then symbiosis	Holding on corporate level. IS: between absorption and symbiosis	Cargo business organization (commercial): symbiosis; departure control: preservation; stations: symbiosis	Catering, crew planning: preservation; Revenue management: symbiosis; methodology financial accounting: absorption
<b>C: Future: Vision</b>									
12	When do you think IS integration in M&A has achieved its goal?		Within 2, 3 years 100% integration for BU passenger, commercial unit	70% will be reached in 5 years for all BU (Passenger, cargo, E&M)	Within 5 years 1 system instead of 2		On long term all systems will be joint	Rational migration to new systems or forced migration to AF old systems	within 5 years not all systems will be integrated: some will be interfaced; more standardization
13	What is the ideal situation of IS integration in the AF/ KL merger?	One controller; BDO integration; clarity in using tools; business rule alignment	100% single systems to gain optimal synergy	Only one business model for the two companies, only one network, one ticketing, plate and so on	Request from joint business for joint IS; one infrastructure; joint management	Access to data; flexibility, interoperability; centralization	Central MI; controller function according to KLM (budget and cost responsibility)	Virtualize, use other technology to bring down total cost of ownership (TCO)	Centralization and standardization;
14	What is the ideal situation of knowledge integration in the AF/ KL merger?	Integration on all expertise levels	Have excellent staff	First synergy, then innovation	New IT via CIO offices; Gartner; small projects	Build expertise to decomplex the back office to create virtual accessibility on the front desk		Use KLM's thinking and modern strength as symbiosis with AF	KLM business innovation department supports joint

**Finish**

16	We finished with the questions now. Before we end, is there anything else you think it would be useful to know?	Type of function is important: 1) level of expertise, 2) dna of people, 3) corporate department, 4) choice of tooling; use KPI to steer on soft factors; AF more people and relation steering, KLM more goal orientated	Core of success: 1) good relationship with counterpart, 2) first align business, 3) integrate ICT, 4) execute	During 5 years we hesitate between the group and two different models, now we know that we move to one model it is very important to have a clear strategy before changing the systems	Maybe focus to much on ICT and to less on organization, people and procedures	Penny wise pound foolish: willingness to invest to make it better lacking; human and cultural aspects are important; use KPI to steer on soft factors;	Strong and fast joint governance; 1) group information management and position between business and IT, 2) joint application portfolio management and 3) one budget	More attention to create acceptance on human level for new development: human factor; not invented here syndrome
<b>Due diligence</b>								
	Was IS part of Due diligence?	Only big systems high level	Only big systems high level	Yes, estimation of IT synergy	Only big systems high level.	Yes	Yes	High level
	Should it be?	Not required	No: relative costs to low	Yes	Yes, high level	Yes		Yes

\* Empty cell means no answer.