# Information systems integration after merger and acquisition

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## Abstract

**Purpose** – The main aim of this study is to perform a case study to understand the information systems (IS) integration strategy of two high-tech companies after merger and acquisition.

**Design/methodology/approach** – The authors perform a case study on the mergers and acquisitions (M&A) of two high-tech companies to illustrate the IS integration activities in the M&A processes.

**Findings** – This study summarizes 26 fields from the IS integration process in the post-M&A period. These 26 fields highlight the challenges when standardizing the integrated system and the impacts on work routines as well as cultural resistance.

**Originality/value** – This study shows that the success of IS integration in the M&A context is determined by identifying critical functions and leveraging the pre-M&A know-hows of both companies. Furthermore, standardization may not be the first priority during the integration process. It is also beneficial to keep the uniqueness of the systems of both companies which reduces the concerns of potential resistance of the IT personnel. This study also has managerial implications. The findings suggest that identifying and prioritizing relevant fields in the context of a cross-business IS integration would improve the resource allocation decision and the effectiveness of post-integration evaluation.

**Keywords** Mergers and acquisitions, Information systems integration, Post-M&A integration

**Paper type** Research paper

## 1. Introduction

Mergers and acquisitions (M&A) are popular strategic activities and are expected to continue to grow (Bloomberg, 2012). According to Bloomberg's (2012) *2012 Global M&A Outlook*, over 24,700 deals were announced with more than $2.11 trillion in total volume by the end of November 2011. One of the challenges companies face during the M&A processes is integration (Eccles *et al.*, 1999; Schweiger and Goulet, 2000; Schweizer, 2005), which often determines the success of M&A (Weber and Pliskin, 1996; Giacomazzi *et al.*, 1997; Schweizer, 2005; Garrie and Griver, 2009). Among the integration activities, information systems (IS) or information technology (IT) integration is the most complex area to manage (PricewaterhouseCoopers, 2009) and

has been a critical issue in M&A success (Johnston and Yetton, 1996; Brown *et al.*, 2003). For example, IT integration can enable the coordination of cross-business knowledge resources (Capron and Pistre, 2002; Tanriverdi, 2005) and reduce the potential delays or disruptions of major business operations (Zollo and Singh, 2004; Homburg and Bucerius, 2006).

Despite the relevant role played by IS integration in the M&A processes, its importance has been overlooked and underestimated (Aponovich, 2002; Tanriverdi and Uysal, 2011). For example, only 24 percent of the acquirers involve their IT executives in the pre-M&A planning (Curtis and Chanmugam, 2005), and most of the IT executives learn about the M&A of their firms from the press (Vielba and Vielba, 2006). In addition, limited academic attention is drawn to providing insights into IS integration in the M&A processes (Johnston and Yetton, 1996; Giacomazzi *et al.*, 1997; Hasselbring, 2000; Aladwani, 2001; Roth *et al.*, 2002; Granlund, 2003; Madapusi and D'Souza, 2005; Mehta and Hirschheim, 2007; Henningsson and Carlsson, 2011; Tanriverdi and Uysal, 2011). Although IS integration is apparently associated with higher long-term business value (Tanriverdi and Uysal, 2011), given the complicated nature of the M&A processes, the role of IS integration in the post-M&A integration process and how M&A affects the IT integration still remain unclear.

In this paper, we perform a case study to understand the IS integration strategy of two high-tech companies after merger and acquisition. The two high-tech companies are:

(1) a local leading internet equipment company; and

(2) one of the largest PC OEM manufacturers in the world.

These two companies provide an important research context because the product lines of the two companies are perfectly complementary to each other. This context allows us to show how the IS integration strategy during the M&A process is affected by such particular context. Our key findings demonstrate that the uniqueness of both systems, potential add-ons, and modifications need to be taken into account when integrating the two systems. Otherwise, delays or disruptions of major operations may occur. The nearly complementary product lines also result in additional challenges as it seems that both firms do not need to integrate IT vendors in the short run. However, in the long run, standardizing the system will be increasingly difficult and will affect work routines and cause cultural resistance.

The remainder of the paper is organized as follows. In Section 2, we review relevant literature on post-M&A integration and M&A IS integration. We present our methodology in Section 3. In Section 4, our case and the case findings are discussed. We conclude with potential contributions in Section 5.

## 2. Literature review

A huge body of literature has investigated different perspectives of M&A activities such as values created by M&A (Jensen and Ruback, 1983), factors affect the success of M&A (Marks and Mirvis, 1998; Appelbaum *et al.*, 2000; Nguyen and Kleiner, 2003; Lipponen *et al.*, 2004), and M&A motives and performance (Goldberg, 1983; Morrison and Floyd, 2000; Kee, 2003). Other researchers have focused on post-M&A integration (Haspeslagh and Jemison, 1991; Birkinshaw *et al.*, 2000; Larsson and Lubatkin, 2001). Some studies in this stream of literature analyze the challenges of post-M&A integration, such as organizational fit (Chatterjee *et al.*, 1992), top employee turnover

during the transition period (Walsh, 1989), and speed (Schweiger and Walsh, 1990). These studies all highlight the difficulties and the importance of bringing different organizations together in the post-M&A period. Nevertheless, prior studies may fail to address the complexity of the post-M&A integration, and a "one-size-fits-all" integration approach may not lead to successful M&As (Schweizer, 2005).

One of the critical dimensions of the post-M&A integration that has been emphasized by practitioners but with limited academic studies is IS or IT integration (Wijnhoven *et al.*, 2006; PricewaterhouseCoopers, 2009). For instance, several studies focus solely on the integration of application programs (i.e. integration of technologies instead of operational procedures). This form of integration requires long-term system maintenance to ensure its operational performance (Hasselbring, 2000; Aladwani, 2001; Roth *et al.*, 2002; Granlund, 2003; Kee, 2003; Madapusi and D'Souza, 2005). Other studies suggest various perspectives that may lead to successful IS integrations. Johnston and Yetton (1996) analyze the IS integration of two Australian banks and demonstrate that the fit of IT can contribute to successful IS integration. Giacomazzi *et al.* (1997) state that IS integration is based on the mutual needs of the organizations to exchange information and integrate relevant business procedures. Mehta and Hirschheim (2007) demonstrate that business IT alignment is a minor concern in the early post-M&A period, but it is realigned in the late post-M&A phases. Henningsson and Carlsson (2011) propose a model based on a six-dimensional theoretical framework for IS integration. These dimensions are synergy (Giacomazzi *et al.*, 1997), organizational integration (Barki and Pinsonneault, 2005), intentions and reactions (Buono and Bowditch, 1989), IS ecology (Weill and Broadbent, 1998), integration architecture (Zhu, 2005), and IS integration role (McKiernan and Merali, 1995). This model is expected to show IS integration issues and actions that a company needs to address during the integration process. Tanriverdi and Uysal (2011) suggest that companies with high levels of cross-business IT integration capabilities can have higher abnormal operating performance in the long run based on a five-dimensional framework. The five dimensions are the integrations of the IT infrastructures, IT applications and data (including employee skills and expertise, product designs, and best practices), IT human resource management processes, IT vendor management processes, and IT strategy-making processes.

This paper builds on prior literature both in post-M&A business integration and IS integration. Using the M&A case of a leading internet communication equipment manufacturer and one of the world's largest electronic manufacturing companies, we show that the key fields need to be considered in the IS integration process in order to successfully integrate the information needed for business operations.

## 3. Research methodology
We use a case study approach to extend our understanding of post-M&A IS integration. A case study approach has been recommended for M&A integration studies because of the need for detailed and contextual information (Larsson, 1990; Bower, 2004; Javidan *et al.*, 2004). The case we use in our study is the merge in 2003 of a local leading internet communication equipment manufacturer, A Company, acquired by H Group, one of the biggest contract manufacturers of electronic equipment in the world. A Company becomes a subsidiary unit of the H Group and operates independently after the merge. The basic information of H Group and A Company is shown in Table I. These two firms have very few overlapped product lines, which

| | H Group | A Company |
|---|---|---|
| Year of founding | 1974 | 1991 |
| Capitalization at the beginning of founding | 300,000 NTD | 54 million NTD |
| Capitalization at the time of merger | 323,000 million NTD | 7.8 hundred million NTD |
| Turnover | 5,000,000 million NTD | 300,000 million NTD |
| Main products | Connectors, wires and cables, computer cases, and power suppliers | Relevant products of notebook and wireless communication modem models |
| Market advantages | Head of private manufacturers | Head of the wireless communication industry in Taiwan |
| Information system | TIP TOP | IBM_BPCS → SAP |

**Note:** NTD – New Taiwan dollar

**Table I.**
Basic information of H Group and A Company

become the motive of the M&A. In particular, the H Group would like to expand its capabilities in manufacturing communication equipment by leveraging A Company's existing market share and its R&D capabilities. At the same time, A Company can obtain the experience in the PC OEM market. Accordingly, both companies can leverage each other's competitive advantages and continue to grow.

We collect the post-M&A IS integration activities through direct face-to-face interviews, and both internal and external documents. For the interviews, we select the interviewees based on the three criteria:

(1) the interviewees have experienced pre- and post-M&A periods;

(2) the interviewees are the key users of the system; and

(3) the interviewees are involved in the IS integration process.

We interview eight employees from both companies with years of tenure from two to 11 years. The interviewees are from different functions such as, finance and accounting, research and development, manufacturing, purchasing, etc. For each interviewee, we distribute open questionnaires before the formal interview to collect interviewee's additional background information and any possible insights the interviewees would like to address. The internal and external documents we obtain include letters, memoranda, communiqués, meeting agendas, notes and records, administrative documents such as proposals, work progress reports and clippings, and other articles that appeared in mass media. We also have access to relevant M&A records, IS transformation of individual companies, M&A problems, ERP introduction documents, public expositions, and announcements.

From our interviews, we categorize 335 phenomenon and key factors of IS integration into three broad categories. Among these factors, 65 are related to the overall M&A activities (category A), 170 are about the implementation details of the system (category B), and 100 are specifically related to IS integration processes (category C). These 335 phenomenon and key factors are further grouped into 26 different fields. For example, factor A27 is about communication and coordination because the interviewees state that "communication plays a very significant role in enterprises' mergers and acquisitions." Details of the categorization results are presented in Table II.

| Items | Fields | Phenomenon and key factors |
|---|---|---|
| 1 | Construction and system | A6, A18, A19, A30, B64, B156, C6, C7, C47, C48, C61, C75, C85, C99 |
| 2 | Faith and support of staff | A3, A9, A10, A23, A25, B7, B15, B16, B17, B25, B38, B54, B61, B62, B106, B107, B108, B126, B140, B141, B164, C21, C64 |
| 3 | Communication and coordination | A17, A24, A27, A31, A49, A59, A60, B10, B23, B105, B111, B119, B142, B145, B158, C27, C35, C41, C65, C81 |
| 4 | Cultural conflicts | A7, A19, A30, A33, A34, A54, A64, B149, C34, C80 |
| 5 | Interface integration | C1, C22, C30, C31, C40, C66, C74 |
| 6 | Database integration | A12, A13, C29, C39, C51, C74, C76 |
| 7 | Software integration | B8, B34, B43, B50, B97, B99, B100, B101, B113, B125, B127, B151, C49 |
| 8 | Process integration | A53, A57, B18, B56, B79, B93, B135, B150, C8, C43, C63, C96 |
| 9 | Continuous support of suppliers and consultants | B6, B19, B29, B57, B78, B89, B96, B98, B115, B131, B136, B139, B160, C13, C17, C87 |
| 10 | System costs | A36, A37, A65, B20, B44, B45, B103, B132, B138, B163, C4, C23, C89 |
| 11 | Technology integration | A11, A14, B154, B161, B162, B170, C9, C16, C26, C62, C88 |
| 12 | Data integration | A48, A55, B39, B41, B48, B49, B58, B87, C32, C50, C67, C71, C72, C73, C78, C92 |
| 13 | System integration | A15, A16, A21, A62, B1, B70, B71, B84, B109, B118, B148, B159, C2, C3, C33, C38, C42, C44, C45, C54, C57, C58, C68, C69, C70, C83, C84, C86, C91 |
| 14 | Support of managers | A26, A39, B4, B12, B27, B31, B36, B53, B60, B66, B67, B68, B72, B75, B92, B116, B134, B143, B165, B166, C18, C19, C20, C25 |
| 15 | Clear target definition | A2, A32, A40, A41, A47, A50, B2, B21, B24, B33, B35, B47, B51, B65, B76, B95, B120, B144, C5, C12, C46 |
| 16 | Plan establishment | A8, A20, A28, A29, A46, A52, A63, B3, B5, B22, B32, B81, B85, B110, B123, B128, B133, B153, C10, C37, C59, C60 |
| 17 | Change management | A1, A4, A5, A35, A42, A43, A44, A51, B9, B26, B30, B40, B55, B59, B77, B94, B114, B117, B122, B146, B152, B155, B157, B168, C14, C52, C56, C82, C94, C95 |
| 18 | Use of time and cost | A22, A38, B14, B46, B102, B137, B163, C79 |
| 19 | Raising of questions | B11, B13, B28, B69, B73, B80, B124, B151, C11 |
| 20 | Staff resistance | B83, B91, B112, B129, B169, C36 |
| 21 | Capabilities of technical department | B147, C26, C77 |
| 22 | Standardization | B101, C49, C97, C98 |
| 23 | Organizational resources | A45, A61, B37, B156, C6, C23, C47 |
| 24 | Employee training | B42, B52, B63, B74, B82, B86, B90, B130, B167, C24, C28, C53, C55, C90 |
| 25 | Participation and evaluation of professionals | A56, A58, C85, C93, C100 |
| 26 | Customization modification | B88, B104, B121, C15 |

**Table II.**
Results of the
categorization

## 4. Case findings and discussion

### 4.1 Case findings

We use the five-dimensional framework proposed in the work of Tanriverdi and Uysal (2011) to facilitate our discussion of findings. We choose to follow the theoretical framework of Tanriverdi and Uysal (2011) because of the following reasons. First, their framework was derived from previous academic and practitioner-oriented literature regarding the critical dimensions of cross-business IT integration in the M&A context. Our paper also focuses on the cross-business IT integration in the M&A context. Second, several benefits of IS integration are discussed in their paper, such as to reduce potential business disruptions and to enable the realization of business strategies. In our case, the two high-tech companies would like to leverage each other's competitive advantage and continue to grow. The expected benefits of IS integration are also similar to the discussion in Tanriverdi and Uysal (2011). However, given the complicated nature of M&A, the uniqueness of each case should provide additional insights to the theoretical framework.

These five domains are:

(1) integration of IT infrastructures (e.g. IT hardware, data communications networks, operating systems);

(2) integration of IT applications and data;

(3) integration of IT human resource management practices;

(4) integration of IT vendor management practices; and

(5) integration of IT strategy-making practices, as detailed below.

The first dimension is the integration of IT infrastructures:

A firm's IT infrastructure consists of complementary technologies such as data communications networks, computing hardware, and operating systems software. Integrating these technologies is essential for creating a common IT infrastructure over which acquirer and target can seamlessly exchange business data (Tanriverdi and Uysal, 2011, p. 705).

Our case indicates the importance of the standardized IS of two systems. A standardized system can simplify business processes and help companies operate more efficiently. As stated by specialist from the H Group head office (H1):

The standardization of the information management system after M&A not only minimizes the long and tedious operation time; it can also provide both users and new staffs with standard procedures.

Thus, the case companies highlight the importance of IS compatibility and integration. That is, if the two sets of IS are incompatible during the integration process, or the hardware and network cannot meet the software requirements, operational difficulties will occur. A Company's senior engineer from the information department (A3) points out that:

Both systems are ERP systems. Therefore, integration should initially focus on the correspondence among functional models. Meanwhile, the correspondence should also enable the transfer of basic data from the old system to the new one. During the transfer, the operational procedure can also be improved and adjusted to fit the standards of the new system. It is also significant to the latter financial and accounting system integration in keeping all the data consistent.

Interestingly, in their effort to unify software and databases, they also try to keep the customized modifications of the pre-M&A system to save the software developing time and to make the new integrated system more advanced.

The second dimension is the integration of IT applications and data:

IT applications refer to software applications such as customer support systems, transaction-processing systems, and workflow management systems [...] Data refer to customer profiles, employee skills and expertise, product designs, best practices, and so forth (Tanriverdi and Uysal, 2011, p. 705).

During IS integration, combining two diverse business processes from two companies is difficult but necessary, especially when the companies that will be merged are forced to adjust their original systems and processes. Furthermore, diverse operational processes increase the difficulty of integration. A Company's engineer from the manufacturing department (A5) says that:

The difference in two companies' operation systems will influence operational procedures. For instance, failures of the application of suppliers' main documents will affect the purchasing of materials and result in the disconnection of the production line.

The significant issues in the integration process of two systems include reviewing SOPs, cooperating with new systems, reviewing business operational procedures, and the management functions of new systems, such as reports management, which can foster the efficiency of information access. The key issue here is the users who operate the new system that can actually help determine the fit of the new system and the operational processes. A Company's senior engineer from the information department (A3) explains that:

He or she must be the key user who is well-experienced in and familiar with operational procedures.

The proper use of staff and facilities can strategically improve operational procedures and reconstruct the visions of enterprises. Conversely, the direct connection between operational procedures and business systems enables enterprises to improve staff performance, efficiency, management, and achieve the goal of saving costs. After the integration of two systems, having well-integrated functions based on the operational needs, as well as a consistent user interface is equally important. For instance, A Company's senior specialist from the sales business department (A7) indicates that:

Introducing ETAS or ETC into forecast amount and transforming system interfaces are equally significant in system integration.

The integrated function of the new system is more comprehensive than the old system and with fewer manual operations, as observed by A Company's specialist from the purchasing department (A6):

The introduction of the new system brings a new function: data can be reversed. The previous data can be traced, and there is no need to explore previous data in a different interface. Moreover, the management of the new system is more exact than that of the old system.

However, the databases that support these functions are designed for various needs to ensure data access efficiency. The integration of diverse IS fields across databases

becomes a difficult but critical issue. Engineer from the manufacturing department (A5) points out that:

> The establishment of the main document is quite influential – defects in front line operations will influence latter operational procedures. Such a problem would be prevented if the establishment of the main document can be accomplished during database integration. A comprehensive system can reinforce its functions and the connections among databases to help staffs check data more conveniently.

Furthermore, all of the data are spread out within the two companies. Although the H Group is responsible for managing the main data, users still encounter some problems during the data integration process due to the difficulty of locating the required data. For example, A Company's engineer from the manufacturing department (A5) says that:

> Operational efficiency will be greatly influenced if the transformation of reports is too slow.

The consistency among application systems can reduce the repetition and modification of data and ensure data accuracy, consistency, and integration, which can significantly improve user efficiency. Most importantly, after the integration, the companies can directly exchange information through systems instead of through telephone, fax, or emails with their suppliers. System integration also enables the administration department to seek more assistance from suppliers as well as invite lecturers. A Company's senior engineer from the information department (A3) says that:

> Suppliers will adjust their purchasing strategies in accordance with the directive of head office. Therefore, it is necessary to adjust the operations of EDI and B2B.

In addition to suppliers, after M&A, the focus of customer management should be on how to ensure that the customer relation will not be affected by M&A, how to respond to customers immediately, and the head office's management of customers' main documents. A Company's senior specialist from the sales business department (A7) indicates that:

> System integration will not affect shipment operations. Only some customers worry that the integration would change our relationship. However, eventually they can accept this condition for enterprises' integration, which has gradually become a business trend.

The third dimension is the integration of IT human resource management processes. "IT human resource management entails a complementary set of management practices such as recruitment, training, motivation, and retention of a firm's IT human resources" (Tanriverdi and Uysal, 2011, p. 706). Given that ISs are often complex, consulting professionals, especially those in sales and production (front-line of business operation) and accounting (back office), and focusing on their operation perspectives is a valuable approach, as reflected by A Company's senior engineer from the information department (A3):

> The difficulties in system integration are that staff members often interpret the new systems in wrong ways, supervisors sometimes lack relevant experiences, or the functions of the new system do not fit the enterprises' needs. It is necessary for experienced consultants to design and explore new functions or interfaces.

In addition, the capabilities of technical departments play a significant role in IS integration. These capabilities include the considerations of professional facilities and project introduction, and the planning before carrying out projects, which will all influence the progress of projects. They also need to solve technical problems such as establishing the testing environment, forming testing plans, exchanging new and old databases, checking external application programs, maintaining the internet, hardware, ancillary equipment, and software, and so on. The importance of IT personnel in the integration process has been emphasized by A Company's engineer from the research and development department (A4):

> In our company, it is the department of information system's responsibility to deal with the issue about project managers. Raising the importance of project managers in enterprises has gradually become a trend in the business world.

More importantly, cultural conflicts, staff resistance, and change management are often critical to the success of IS integration. A Company's section manager from the administration department (A1) states that:

> There must be certain problems, such as cultural differences and executives' diverse perspectives, when two organizations with different compositions are integrated.

Different corporate cultures bring diverse atmospheres and operational models. The consideration of cultural differences between two companies should be prioritized in the implementation of a new operational model after M&A. The cultural differences, among other changes during the integration processes, may lead to resistance from the staff; thus, such reformation needs to be better managed. For example, specialist from the H Group head office (H1) says that:

> The continuous introduction of new regulations will always cause difficulty in the staff's adjustment.

Similarly, engineer from the manufacturing department (A5) states that:

> Staff often complains that it is quite difficult to get used to the new system. They also keep asking if they can still use the old system.

A better change of management and comprehensive training programs for employees can reduce the resistance and smooth the operation of new systems.

The fourth dimension is the integration of IT strategy-making processes:

> IT strategy making entails a complementary set of management practices such as determining strategic rationales of a firm's IT investments, formulating a firm's IT strategy, aligning its IT and business strategies, and managing its relationships between IT and business units (Tanriverdi and Uysal, 2011, p. 707).

A Company's senior engineer from information department (A3) states that:

> Enterprises must integrate individual information systems to achieve the goal of information and resource sharing. Therefore, both companies are moving toward the collective goal of operating in the same working platform.

In particular, companies should draft flawless and comprehensive proposals and schedules, list integration targets, and finalize the arrangement of resources as well as

technologies of integration, as stated by A Company's engineer from the research and development department (A4):

> After the merging of two companies, continuous examination is necessary, whether in business planning or the budgetary aspect of IS integration.

Top executives should also participate in the implementation of new systems to encourage staff participation. Other relevant internal procedures such as actual operations, discussions about introduction plans, and data integrity and accuracy should also be executed by the whole organization, including top executives. Furthermore, the project manager responsible for system integration should carefully list dates, times, human resources, and funds that can be gained from the overall integration project. In the early stage of M&A, companies should initially evaluate organizational objectives and their expectations of the new systems. Companies should likewise carefully measure the operational procedures of each department and list the significant functions of each procedure to further understand the required costs and resources of the new system, including the time needed, software costs, and human resources. However, the subsidiary units might only passively adopt the head office operations. A Company's section manager from the administration department (A1) states that:

> After M&A, the power of the head office to influence subsidiary units or vice versa is not absolute. Other influential issues such as the reorganization of human resource will also come into play.

That is, the extent of formalization and centralization, and the complexity of an organization will influence the results of system integration. Corporate cultures also cause difficulties in coordination. For example, A Company's section manager from the administration department (A1) says:

> Enterprises' management has been transformed into group operation after M&A. The condition is drastically different from the management of an individual company. Therefore, communication in the organization becomes more difficult. The cost of communication also increases.

The last dimension discussed in Tanriverdi and Uysal (2011) is the integration of IT vendor management processes:

> IT vendor management entails a complementary set of management practices such as determining strategic goals for IT vendor relations, negotiating and making deals with vendors and service providers, and managing vendor relationships (Tanriverdi and Uysal, 2011, p. 707).

Interestingly, we do not observe any information regarding the integration of IT vendor management. After the integration, both companies have a new integrated system, and the IT vendor management process integration does not become a critical issue in the short run.

To summarize, our case study suggests that both companies need to follow an overall IT deployment strategy to successfully integrate IS in the post-M&A period. In our case, the IT strategy of the acquirer guides the overall IS integration processes. However, to obtain the benefits of M&A, the integrated ISs need to take into account the pre-M&A systems of both companies instead of simply following a certain firm's routine. Furthermore, an integrated system reduces the need of integrating IT vendor

management at the early stages. Last, with a new integrated system, the cultural impact and resistance are still left to be handled within each company, which can help the change of management in the post-M&A period.

*4.2 Discussion of findings*
As mentioned in Section 2, IS integration is part of the business integration. Post-M&A IS integration based on a framework of post-M&A integration is important to investigate. The prominent work by Haspeslagh and Jemison (1991) shows three different post-acquisition integration approaches:

(1) *Preservation.* The acquired company preserves its way of doing business (i.e. with low interdependence and high autonomy).

(2) *Symbiotic.* Both companies are highly interdependent but still with a high level of autonomy.

(3) *Absorption.* The acquirer absorbs the acquired business into its culture.

According to our case findings, IS integration is apparently more in line with the symbiotic approach. Nevertheless, we do not observe the initial preservation period in our case as discussed in Haspeslagh and Jemison (1991). Our findings of IS integration simultaneously indicate a pattern of preservation and absorption. That is, to standardize the infrastructure and the systems, both firms need to follow the IT strategy of the H Group and the major implementations. At the same time, both firms still control their own vendors and human resource management (including the change of management).

We notice that this mixed approach is similar to the results of Schweizer (2005). Specifically, in Schweizer's (2005) context of the acquisition of biotech companies and pharmaceutical companies, he observed the similar mixed pattern of preservation and absorption (more in line with the symbiotic approach). The high-tech nature of biotechnology and pharmacology is similar to our context of two high-tech companies, which makes the framework possibly applicable in our context. In addition, IS integration is included in the integration of the supporting activities of the value chain in the framework of Schweizer (2005). Therefore, the IS integration also fits into the proposed "hybrid" model for post-M&A integration. The proposed "hybrid" model focuses on comparing the core competencies given the motives pursued and determines the appropriate integration approach. For example, clinical trials are the core competency of pharmaceutical companies. They acquire biotech companies to increase R&D capabilities and gain access to new drugs. In this case, absorption is more appropriate to leverage the core competency and to increase the post-M&A value.

Comparing the integration framework with our findings, the IS integration case in our context of the merger of two high-tech manufacturing companies is not explained. Specifically, in our case, both the H Group and A Company keep their customized modifications and build a new system. This case simultaneously combines preservation and absorption as both firms leverage pre-M&A know-how instead of focusing on the core competency of one firm and integrating based on autonomy level. Furthermore, the two companies do not really try to set up different IT department cultures. Instead, through the establishment of a new system, the culture and operational processes will be affected. Such cultural impact and potential resistance are handled at each company with autonomy and can possibly reduce the resistance and help with change of management.

Therefore, our results shed light on the uniqueness of IS integration in the post-M&A integration processes. In particular, in our case, the product lines of two companies are complementary in nature and have very few overlapping operations. Given this characteristic and the motive of the M&A, the hybrid model proposed by Schweizer (2005) should work. That is, even after the M&A, each company can focus on its primary operational activities and core competencies. However, this scenario is only true for primary functions in the value chain but does not hold for IS integration, a supporting function. To successfully integrate the ISs, the companies need to follow a firm's overall IT strategy and combine both companies' systems to have a standardized IT function but still reflect the differences within each system. A summary of mappings between management fields and dimensions from this case study is given in Table III. For example, the dimension of "integration of IT human resource management processes" emphasizes on training and motivation of a firm's IT human resource. Since the entity may encounter issues of change management during the IS integration period, the capabilities of IT personnel have improved and related training must be performed. The related management fields found in the case study such as capabilities of technical department, cultural conflicts, staff resistance, change management, employee training, and faith and support of staff were grouped in the dimension of integration of IT human resource management processes.

| Dimensions (Tanriverdi and Uysal, 2011) | Management fields |
| --- | --- |
| 1. Integration of IT infrastructures | Interface integration |
| | Technology integration |
| | Standardization |
| | Customization modification |
| 2. Integration of IT applications and data | Software integration |
| | Data integration |
| | Process integration |
| | Participation and evaluation of professionals |
| | Database integration |
| | System integration |
| 3. Integration of IT human resource management processes | Capabilities of technical department |
| | Cultural conflicts |
| | Staff resistance |
| | Change management |
| | Employee training |
| | Faith and support of staff |
| 4. Integration of IT strategy-making processes | Clear target definition |
| | Organizational resources |
| | Plan establishment |
| | System costs |
| | Communication and coordination |
| | Support of managers |
| | Use of time and cost |
| | Raising of questions |
| | Construction and system |
| 5. Integration of IT vendor management processes | Continuous support of suppliers and consultants |

**Table III.**
Summary of management fields and dimensions in Tanriverdi and Uysal (2011)

## 5. Conclusions

The integration of ISs is critical to the success of M&A processes. However, given the complicated nature and the uniqueness of each M&A arrangement, such a role needs further investigation and can provide additional insights with different M&A contexts. Our results suggest that although both are large-scale companies, both companies have proper communication and negotiation among staff members, which leads to a clear target and the support of IS integration. Nevertheless, the cultural conflicts and the operational differences still cause resistance and change of management. More importantly, the IS integration process shows the importance of the contribution from both companies to better incorporate the operational needs. As discussed, our study provides insights and suggestions on how to manage IS integration in the post-M&A period, which in turn may result in M&A success. This study contributes to the literature by showing that the success of IS integration in the M&A context is determined by identifying critical functions and leveraging the pre-M&A know-hows of both companies. Furthermore, standardization of the two ISs may not be the first priority during the integration process. It is also beneficial to keep the uniqueness of the systems of both companies which reduces the concerns of potential resistance of the IT personnel. This study also has managerial implications. Our findings suggest that the importance of identifying and prioritizing relevant fields is critical in the context of a cross-business IS integration. Such process would improve the resource allocation decision and the effectiveness of post-integration evaluation.

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