

# An introspection for the field of IS integration challenges in M&A

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## ABSTRACT

The last decade has seen a rise in research on the topic of challenges associated with information systems (IS) in corporate mergers and acquisitions (M&As). Although this proliferation of research has the potential to significantly improve our understanding of IS challenges in M&A activity, absent is the necessary step of consolidating and integrating extant knowledge. In this paper, we review the domain of IS integration in M&As with focus on *what* have been studied and *how* it has been studied. By reviewing 37 articles, published in 13 journals, 5 conference proceedings this paper identifies patterns and gaps, and provides directions for future research.

## Keywords

Mergers & Acquisitions, Post-merger integration, IS integration, Literature review

## INTRODUCTION

Organizational mergers and acquisitions (M&As) has reached the levels of more than 40.000 per year globally in recent years (Thomson-Reuters, 2012). Paralleling this practical importance, M&A activity has increasingly become a focus of study in several academic fields. Typical findings from these studies suggest that M&As rarely lead to value creation. Financially, it has been estimated that between 60-70% of all acquisitions in private sector rather destroy than create financial value, as measured by either short-term performance measures, long-term performance measures, or firm value (Haleblian et al., 2008).

Haleblian et al. (2008) recently surveyed M&A research in the accounting, economics, finance, management and sociology literatures from 1992 to 2007. The survey identified 864 articles seeking explanation into the challenges to mergers and how they are overcome. The emerging picture is one of M&As as highly multifaceted phenomena of which no single approach can give a complete account. Financial, strategic, managerial, sociological, organizational, and psychological factors have all contributed explanations and sound normative strategic and tactical recommendations from analysis of organizational culture to implementation of organizational change. However, the picture is still incomplete. Despite the extensive research in the area, findings remain imprecise and inconclusive (Haleblian et al., 2008). In addition, as the business practices and global conditions for doing business evolve, so do also the foundations for value creating M&As. Consequently, the explanation to value creating M&As becomes the hunt for a running target (Henningsson & Carlsson, 2011). Explanatory models needs to be revised based on the developing conditions for doing business.

In a world where organization are becoming from top to bottom dependent on their information systems (IS), IS are playing a continuously more important role in the realization of value from M&As. It is estimated that 45-60% of the expected benefits from M&As are directly dependent on IT integration (Sarrazin & West, 2011). In addition, Rodgers (2005) cites factors relating to IT integration as the third most important reason for merger failures.

As a response, the last decade has seen a rise in research on the topic of challenges associated with IS in M&As. Collectively, this emerging body of research are beginning to explain and seek solutions for successful IT integration in the characteristics of the IT integration challenge (Johnston & Yetton, 1996; Giacomazzi et al, 1997; Wijnhoven et al., 2006; Mehta & Hirschheim, 2006; Henningsson & Carlsson, 2011) and the merging companies' capabilities to manage successful IT integration (e.g. Stylianou et al. 1996; Robbins and Stylianou 1999; Tanriverdi and Uysal 2011; Henningsson 2012; Yetton et al., 2013).

Although the recent proliferation of research on IS challenges in M&As, the research area is fragmented and scattered, with significant gaps in the extant knowledge base (Wijnhoven et al., 2006; Mehta & Hirschheim, 2007; Henningsson & Carlsson, 2011). However, no systematic review has been made of the research area. As a result, cumulative knowledge creation and direction of research to unexplored areas are hampered. In this review, we address this issue by attending to the following research question:

- In relation to IS/IT integration challenges in mergers & acquisitions, *what* has been studied and *how* has it been studied?

This means that we review the *object of study*, and the *research approach* taken to investigate the subject matter. What object of study is taken to represent a problem domain, and how it is studied have important impact on the conclusions and theory development that can be made (e.g. Venkatesh et al., 2013).

As the review shows, the extant research on issue of IS integration in M&As has heavily favored some types of study objects and research approaches, leaving important gaps in the collective understanding. Our contribution lies in the identification of patterns and gaps, and the provision of directions for future research. In this paper, we delimit ourselves from the specific conclusions made by the respective papers reviewed. For initial steps towards such an overview, see for example Henningsson & Carlsson (2011). A systematic review of explanatory and normative conclusions is an outstanding research issue.

The remainder of this paper is divided into four sections. The first section covers the design of the review; the second reviews the object of study in the extant literature. The third section reviews the research approach taken. The fourth section concludes with a summary of the work and a look at gaps and future research opportunities.

## REVIEW DESIGN

The method used for this literature review is a database-driven approach (vom Brocke et. al 2009, Webster and Watson, 2002) using a list of research material from academic journals and conference proceedings. Specifically, the search was focused on literature on the 110 journals of the AIS Journal Ranking list (AIS, 2012) and the AIS international and regional conferences (ICIS, AMCIS, ECIS, PACIS).

An initial full-text search was conducted for peer-reviewed content in Business Source Complete (1989-2012) and ScienceDirect (1989-2012). The following search terms, chosen very broadly to gather a large pool of candidate articles, were used in the databases covering the chosen journals.

[(acquisition) OR (integration) OR (post-merger) OR (acquisition AND integration) OR  
(post AND merger AND integration) OR (serial AND acquisition) OR (integration AND planning)]

The search resulted in 638 publications. By reviewing the titles and abstracts of these publications, 480 publications were directly judged as not relevant for the topic (i.e. publications dealing with acquisition and integration of new IT systems). Following the sorting, another 122 publications were removed after a full review of the paper. The removed publications were written about tangential topics to M&A-integration or had a very limited amount of information on the M&A integration process.

Finally a set of 37 articles (Appendix A), published in 13 journals and 5 conference proceedings, were chosen for further review by a pre-defined template (Appendix B) to capture object of study and research approach employed. Data analysis was partitioned into three subtasks: data reduction, data display, and conclusion drawing (Miles & Huberman, 1994). Inspired by Strauss and Corbin (1994) a technique similar to systematic categorization was employed, with a priori categories based on previous literature. The categories included are presented under each area of investigation below.

## OBJECT OF STUDY

### Transaction

Transaction refers to the type of organizational combination studied. Within the extant literature on IS integration challenges in M&A, we identify four distinct categories of transactions: Mergers of equals, acquisitions of individual business units, serial acquisitions of business units, and the combined category of M&As in general.

With the argument that the distinction between ‘mergers’ and ‘acquisitions’ is only juridical, prior literature has frequently used the combined term ‘merger and acquisition’ (M&A) to refer to organizational combinations (e.g. Mehta & Hirschheim, 2004; Wijnhoven et al., 2006). What looks similar to an acquisition may, in a legal sense, be a merger and vice versa; what looks similar to a neutral merger might, in a legal sense, be an acquisition (Giacomazzi et al., 1997). However, there is a growing awareness that the transactions studied in the domain are fundamentally different. The many few acquisitions

undertaken yearly by organizations such as Siemens or Cisco, are from an IS perspective fundamentally different integration projects than the merger of two multi-business organizations (Henningsson & Yetton, 2011). In addition, recent articles also highlight that there is a difference, from an IS perspective, between the integration of individual acquisitions, and acquisitions that form part of serial acquisition in acquisition programs (Yetton et al., 2013).

M&A in general	6 Papers
Merger	16 Papers
Individual acquisition	14 Paper
Acquisition program	1 Paper

**Table 1 - Summarizing the different types of transactions that have been address by the extant research**

Regarding transaction, a progression can be seen over time. Whereas early publications (e.g. Giacomazzi et al., 1997) did not differentiate between any type of transaction, later publications have become more distinct in their identification of transaction studied (e.g. Henningsson & Yetton, 2011; Yetton et al., 2013).

**Chief actor of the process**

A merger or acquisition can be seen from the perspective of many different stakeholders. Four distinct chief actors have been used as perspectives on the transaction studied: the merging partner, the acquirer, the acquisition, and the vendor. The merging partner is one of the organizations in a combination of equals who becomes part of a frequently political process to design and implement post-merger IS integration. The acquirer is the more powerful, usually larger, organization that dictates the conditions for the IS integration. The acquisition target is the organization being acquired, who face the risk of staff redundancy and IS skills becoming obsolete. The vendor is the multi-business organization that divests and carve-out one of its business units in an acquisition transaction.

Merging partner	24 Papers
Acquirer	12 Papers
Acquisition Target	0 Paper
Vendor	1 Paper

**Table 2 - The perspective of the four chief actors has been taken to various extant**

Noteworthy, only 3 out of 37 articles have taken the combined perspective of two parties in the transaction. No article has studied mergers from both sides of the merger. One article has studied acquisitions from both the acquirer and the acquisition’s perspective. Finally, only one article has studied the transaction from both the acquirer’s and the vendor’s perspective. The papers that have taken combined perspective find that the mix of collaborative and competitive forces strongly influence the challenges of the counterpart.

**Industry**

The industry context of a study has important ramifications for theory development (Chiasson & Davidson, 2005). Mergers and acquisitions is a prevalent growth strategy employed by companies in majority of industries, however a review the extant research suggests that a specific focus on a limited number of industries. While majority of M&A activity has taken place in these industries in the past 20 years, there is an emergence of M&A activities in other industries driven by the emergence of technology as a competitive differentiator. Corporate growth in the past has been driven by larger one-time mergers of organizations, such as in the banking and pharmaceutical industries, while other industries seeing organic growth through small to medium size acquisitions using a serial-acquisition strategy has rarely been the focus of researchers.

Banking	5 Papers
Retail	1 Papers
Manufacturing	6 Papers
Telecommunications	3 Papers
Gas & Oil	1 Paper
Construction	1 Paper
Chemical, Mechanical, Textile and Material Transformation	1 Paper
Non-specific	19 Papers

**Table 3 - The focus of extant research in the IS domain has focused primarily on the following industries**

Within the investigated industries, Banking and Manufacturing stands out as the industries that have received the most attention. These are two industries that lend themselves to initial theory building on IS integration in M&As. Much of the existing models of strategic and organizational aspects of M&A is developed based on the manufacturing industries and the synergistic scale and scope effects of the industry. Investigating a new aspect of M&As, using an established industry for theory building reduces the uncertainty and enables positioning of IS issues to the extant literature. The financial industries are emphasized as the industries where most business benefits are dependent on IS integration (Sarrazin & West, 2011). Hence, the financial industry is a context that accent the effects of IS integration in the complex organizational integration process. The industry is therefore appropriate for theory development. However, the financial industry can be expected to play up the importance of IS integration compared to the average M&A project.

A noteworthy absence in the list of investigated industries is what can be called ‘hi-tech’ industries. The fact that for companies such as Google, Siemens and Cisco, acquisitions are integrated parts of the corporate strategy with many acquisitions being made every year calls for more research in the area.

**RESEARCH APPROACH**

**Theoretical development**

Gregor’s (2006) taxonomy of theories in IS research was used to categorize the theoretical outset of the extant literature on IS integration in M&As. Within the taxonomy, five types of theories are defined: (1) theory for analyzing, (2) theory for explaining, (3) theory for predicting, (4) theory for explaining and predicting, and (5) theory for design and action.

Theory for analyzing and describing	16 Papers
Theory for explaining:	14 Papers
Theory for predicting	3 Papers
Theory for explaining and predicting	4 Papers
Theory for design and action	0 Papers

**Table 4 - Approaches to theoretical development in the extant research**

Extant research has primarily focused on the building of theories for analysis and description and explanation, while theories for prediction and, in particular, design and action are lacking. This can be seen as natural, given the limited research in the area. A frequent argument is made that the field is sparsely investigated and that initial, exploratory theoretical development is needed. However, after 37 papers there now is a theoretical body to build upon and limited room for exploratory studies. Instead there is now increasing possibilities to build theories for design and action based on extant explanatory and prescriptive theories.

## Data collection

In the general literature on M&As, studies based on quantitative data (surveys and empirical studies) outnumber the studies based on qualitative data (single and multiple case studies) by a factor of 20 (Bengtsson & Larsson, 2012). In the extant research on IS integration issues in M&A, only 7 of 37 identified publications were based on survey or empirical data:

Single case	12 Papers
Multiple case	10 Papers
Survey	7 Papers
Empirical study	0 Papers
Conceptual	8 Papers

**Table 5 - Approaches to data collection in the extant research**

We see that the explanation to the very different distribution of data collection methods in IS-related studies compared to M&A studies in general is two-fold: First, there is a waste number of public and commercial databases with covering many aspects of M&As readily for quantitative analysis. However, these databases do not cover IS or IT aspect of the merger or acquisition. This makes quantitative studies of IS integration issues in M&As comparatively more difficult to carry out. Second, whereas case access for in-depth studies of the strategic and political aspects of M&As can be hard to achieve, the IS integration issues can be perceived as less sensitive. This makes qualitative studies of IS integration issues comparatively less difficult to carry out. In combination, the possibilities for data collection strongly favor studies based qualitative data.

## DISCUSSION AND CONCLUSION

This paper reviews the extant research on IS issues in M&As and suggests directions for future research. The paper is based on the position that what part of a population is studied, and by which method influence the findings that can be made from the investigation. We identify 37 articles published in 13 journals and 5 conferences that deals with IS issues in M&As as their primary topic. By reviewing these articles we concluded that the extant research has:

- Increasingly started to distinguish between different types of organizational transactions in the studies, with study emphasis on transactions that consists isolated events and largely ignorance of transactions that form part of larger programs.
- Emphasized the perspective of one part in a merger and the acquiring part in acquisition, while largely ignored the perspective of the vendor and the acquired organization. Further, extant research has looked at the IS integration and the IS carve-out in isolation and not connecting the two activities.
- Exclusively focused on the traditional industries of finance, manufacturing and health care and ignored fast moving hi-tech and IT industries,
- Largely been exploratory with descriptive and/or explanatory theory building outset. Predictive and prescriptive theory building is still lacking.
- Relied on single case and survey data to a much larger extant than the general M&A literature.

Compared to the amount of research on M&A issues in other domains, the extant research in the domain of IS on M&As is extremely limited. Haleblian et al. (2008) surveyed M&A research in the 4-6 top journals of accounting, economics, finance, management and sociology literatures from 1992 to 2007. With a very narrow search, the survey identified 864 articles. A similar search today in the six top-ranked IS journal (here defined as the AIS Senior Scholars Basket of Six Journals), would have identified only three articles (Mehta & Hirschheim, 2007; Henningsson & Carlsson, 2010; Tanriverdi & Uysal, 2011). An expansion of the search to the eight top journals would have added only two articles (Johnston & Yetton, 1996; Wijnhoven et al., 2006).

One potential reason to why the IS community has not been more engaged in the exploration of value creating M&As is likely that, traditionally, IS issues has not been seen as critical for M&A success. As noted by Yetton et al. (2013), IS are traditionally considered late in the merger or acquisition process, and then frequently dealt with as if it was only a technical challenge. In the sensitive process where managerial attention is at premium, IS integration is not considered a potential deal

breaker. This is also reflected in that IS or IT aspects of deals never are recorded in the commercial databases frequently used for quantitative analysis of general M&A aspects.

To advance the research field, future research should search to combine and relate research methodologies, and perspectives of acquirers/vendors/merging partners. Research should also seek to investigate other industries. For example, the High-tech and IT industry is unique and given the lack of attention from researchers in the IS field it deserves further exploration. The High-tech and IT industries sets themselves apart in several ways, but specifically motivation for further research can be linked to the following characteristics: Large High-Tech companies are at a tipping point (value or growth), the ability to grow depends on strategic innovation and acquisitions, the goal for most enterprises is to establish and exploit 'market adjacencies', in addition competitive pressures in the High-Tech Industry encourages speed of acquisition. However extant approaches to post-acquisition IS integration might be too slow for fast moving industries. Hence, lack of representation by IT in valuation & due diligence can hinder the successful integration. Majority of enterprises in this sector are serial acquirers and very little research has been conducted in this area.

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## APPENDIX A. EXTANT LITERATURE ON IS INTEGRATION IN M&amp;AS

#	Y	Author(s)	Transaction	Chief Actor	Industry	Theoretical development	Data collection
1	1989	Main & Short	Merger - single	Acquirer	Healthcare	Exploratory	Case study - single
2	1992	Buck-Lew et al.	Acquisitions	Acquirer	Banking, case study in retail	Exploratory	Case study - single
3	1993	Jelassi & Dutta	M&A - Systems Integration	Acquirer	Gas and Oil	Exploratory	Case study -Single
4	1993	Merali & McKiernan	Acquisition - single	Acquirer	Non-Specific	Exploratory	Case study & Survey
5	1996	Johnston and Yetton	Merger - Large Companies - single	Acquirer	Banking	Explanatory	Case Study - Single
6	1996	Stylianou et al.	Merger - single	Acquirer	Non-specific	Exploratory	Survey - US Public Companies 1989-91
7	1996	Weber & Pliskin	Acquisition	Acquirer	Banking, Trucking, Chemicals, Food	Descriptive	Survey
8	1997	Giacomazzi et al.	Acquisition - Large Companies - single	M&A	Chemical, Mechanical, Alimentary, Textile, and Material Transformation	Explanatory	Survey - in Italy of 98 (38 selected) 1991-94
9	1999	Robbins & Stylianou	Merger - single	Acquirer	Non-specific	Exploratory	Survey - US Public Companies 1989-91
10	2002	Gurjar et al.	Merger-general	Acquirer	Non-specific	Exploratory	Case Study - Multiple
11	2004	Alranta & Viljanen	M&A	Acquirer	Non-specific (future research proposed for highly IT intensive and Non-IT intensive industries)	Exploratory	Literature Review
12	2004	Chin et al.	Acquisition	Acquirer	Non-specific	Descriptive	Case Study
13	2004	Epstein	Merger, Acquisition and Conglomerate	Acquirer	Banking	Explanatory	Case study - single
14	2004	Hwang	M&A	Acquirer	Non-Specific	Exploratory	Literature Review
15	2004	Mehta & Hirschheim	Merger	Acquirer	Non-specific	Exploratory	Extends framework based on previous research
16	2005	Alaranta	Merger-general	Acquirer	Manufacturing	Explanatory	Case Study - Longitudinal
17	2005	Alaranta	Merger-general	Acquirer	Manufacturing	Explanatory	Case Study - Single
18	2006	Brunetto	Merger - serial	Acquirer	Real Estate Construction - France	Descriptive	Case Study - Multiple
19	2006	Henningsson & Carlsson	Acquisition - single	Acquirer	Manufacturing	Exploratory	Case Study - Single
20	2006	Wijnhoven et al.	Acquisition	Acquirer	Hospital	Exploratory	Case Study - Multiple
21	2007	Alaranta & Henningsson	Acquisition	Acquirer	Telecommunications & Manufacturing	Exploratory	Case Study - Multiple
22	2007	Alaranta & Henningsson	Acquisitions	Acquirer	Non-specific (Telecomm and Manufacturing examples)	Exploratory	Multiple Case Analysis
23	2007	Henningsson	Merger - serial	Acquirer	Manufacturing	Exploratory	Case Study - single
24	2007	Henningsson et al.	Acquisition - Single	Acquirer	Industrial	Descriptive	Case Study - Multiple (5)
25	2007	Mehta & Hirschheim	Acquisition - Single	Acquirer and Acquiree	Non-Specific	Descriptive	Case Study - Multiple
26	2007	Miklitz & Buxmann	Merger-general	Acquirer	Non-specific	Exploratory	No empirical work, introduction of a decision model based on previous literature and another model.
27	2007	Vieru & Rivard	M&A	N/A	N/A	Descriptive	Categorization of current works - Literature Review

#	Y	Author(s)	Transaction	Chief Actor	Industry	Theoretical development	Data collection
28	2008	Baro et al.	Mergers, no focus on serial or single	Acquirer	Non-specific (comprehensive across all industries)	Exploratory	Literature Review - Proposed Survey
29	2008	Bhabra & Rheume	Acquisition	Acquirer	Publishing, Entertainment, Consumer Electronics, Public Telephone Networks, Cable TV, Broadcast media and private networks	Exploratory	Event Study - analysis of public announcements of acquisitions
30	2008	LeFave et al	Merger	Acquirer	Telecommunications	Exploratory	Case study
31	2008	Lin & Chao	Merger (two departments) - single	Acquirer	Banking	Descriptive	Case study - single
32	2009	Morsell et al.	Merger - single	Acquirer and Acquiree	Non-specific	Descriptive	Survey in US - Greater than \$25 M - 2004 -2007
33	2009	Tanriverdi & Uysal	M&A	Acquirer	Multi-business firms	Exploratory	Survey
34	2010	Seddon et al.	Merger-general	Acquirer	Banking	Descriptive	Case Study - Multiple - Comparison
35	2011	Böhm et al.	Acquisition and Divesture	Acquirer and Divesting Company	Non-specific	Exploratory	Case study - single
36	2011	Henningsson & Carlsson	M&A	Acquirer	Equipment & Manufacturing	Exploratory	Case Study - Multiple & Engaged Scholarship
37	2011	Henningsson & Yetton	Acquisition - Multi-Business Organization - serial	Acquirer	Manufacturing	Exploratory	Case - Multiple (Cross-Case Analysis)

**APPENDIX B. TEMPLATE FOR DATA COLLECTION**

<b>Title</b>	An approach to analyzing and planning post-merger IS integration: Insights from two field studies
<b>Author</b>	Alaranta & Henningsson
<b>Source</b> (Journal or Conference)	Information Systems Frontier
<b>Year</b>	2008
<b>Data Collection</b>	Case study - Multiple
<b>Transaction</b>	Acquisition
<b>Chief Actor</b>	Acquirer
<b>Research question/Problem</b>	Adapts IT Planning Principles to M&A Integration
<b>Theoretical Development</b>	IT Planning Perspective
<b>Industry</b>	Telecommunications and Manufacturing
<b>Research Method</b>	Descriptive
<b>Conclusion / Industry Output &amp; Contribution</b>	Focus on differences in the process of shaping post-merger integration