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INTEGRATING MANAGEMENT INFORMATION SYSTEMS FOLLOWING ORGANIZATIONAL MERGERS OR ACQUISITIONS

Completed Research Paper

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Abstract

Mergers and acquisitions have become a normal business occurrence for companies large and small. Integration of entities following mergers and acquisitions are often more painful and less successful than they could be. The integration of information technology functions plays a vital role in the ultimate results of such a merger by actualizing product and customer synergies, establishing best practices drawing from the best of each organization, and providing smooth transition to integrated reporting and decision systems. This study proposes to investigate best practice for information technology leaders for integration of functions following mergers and acquisitions, considering outcomes and metrics, pre-merger activities, human resources, culture, learning and other key issues. Results are presented as the distillation of comments extracted from a wide variety of perspectives, organizational situations, and personal reflections by MIS professionals. Additional observations are noted, and several emergent questions aimed at furthering our understanding of this phenomenon are presented.

Keywords: Mergers, acquisitions, systems integration, management of information systems

Introduction

Understanding the integration of MIS functions following mergers and acquisitions addresses an important and frequently occurring organizational problem. Based on statistics published in *IDD Magazine* derived from the consulting group 451, which maintains a database regarding merger and acquisition events, some 4,000 mergers and acquisitions were reported in 2006 (Miller, 2007). This number is derived just from the technology and telecom sector and represents a small fraction of all mergers and acquisitions. In spite of the large number of mergers and acquisitions, however, on average, when adjusted for market effects, the value of both the acquired and the acquiring companies tends to fall rather than increase as a result of merger and acquisition (Pautler, 2003). McKiernan and Merali (1995) estimate that between 33% and 60% ultimately result in divestiture. They reference Violano (1990) claiming that 80% of merger deals ended up, “destroying the value of the organization for the acquiring company.”

One major reason for poor results from mergers and acquisitions is the difficulty and complexity of integration of the entities (Srivastava, 1986). The management of mergers and acquisitions at the operational level should be of great interest to CIOs and senior MIS managers, as organizations face challenges which limit the ability to implement fully rational decision-making models as a result of the nature of each step in the merger process (Jemison & Sitkin, 1986). Senior MIS managers should expect to be called upon multiple times in an active career to evaluate an acquisition or merger opportunity prior to or more likely lead the resulting integration of MIS departments. Although other factors, such as the negotiated price of the transaction and merging of cultures and business processes, are also important in the outcome of a merger or acquisition (Alexandridis, Antoniou, and Petmesas, 2007), the integration of MIS assets is an important influence on outcomes from the transaction (Origitano, 2006).

MIS is critical to post merger and acquisition integration for at least the following reasons: (1) the newly merged entity may take advantage of increased bargaining power to renegotiate with vendors and other suppliers in a way that significantly reduces cost or increases services (or may miss such an opportunity); (2) the MIS function provides critical support for business processes whether they be in operations, marketing, research and development, or elsewhere, the integration of which relies on smooth uniting of MIS infrastructure and technical support; (3) the MIS function provides the continued supply of accurate, timely, and relevant operational data formatted, aggregated, cleansed, and presented for on-going business decision making; and (4) the MIS personnel in an organization represent a substantial knowledge asset for maintaining existing technology, providing innovation, and moving to a stronger platform in the emerging new business entity formed of acquired and acquiring firms.

A scarcity of research on integrating MIS following merger and acquisition events provides little guidance in this area for practitioners. This study proposes to examine in detail critical factors, actions, and policies, and to map patterns of relationships between factors, actions, policies, and the outcomes of merger and acquisition events.

Literature Review

Mergers and Acquisitions at the Organizational Level

Financially oriented studies pertaining to the effects of mergers and acquisitions on organizations and stockholder wealth suggest structural factors correlated with rising or falling value as measured by stock prices (Chatterjee et al, 1992; Gao and Iyer, 2006). Alexandridis, Antoniou, and Petmesas (2007) suggest that an optimistic view in approaching mergers and acquisitions is largely unsupported by observation of prior financial results when reviewed from a variety of methodological and conceptual perspectives. Pautler (2003) takes an economic approach from the perspective of investigating whether or not mergers and acquisitions create dangerous anti-competitive trust activity. This study considers only the net impact of mergers and acquisitions on the overall economy and is not much concerned with issues that would increase or decrease the probability of any particular merger being successful. Additional investigations propose that a higher degree of similarity in product lines, marketing skills, or other factors correlate with increased stock prices at various points in the future. Although such similarities, on average, make problems of integration easier to resolve they do not mitigate the need for tactics that aid in such integration across the full range of merger and acquisition activity.

Organizational intentions with regard to integration of entities after a merger and acquisition may vary. At one extreme, entities can be left essentially separate as one finds with holding companies. At the other end a firm may

attempt to combine the best of both original entities (best of breed) or assimilate one or the other of the original entities (absorption). Companies may react quickly toward integration or may postpone actions for a later time period. The difficulty in timing integration activities has been described as the “M&A management paradox”. Paruchuri, Merkar, and Hambrick (2006) describe this as “one of the central dilemmas in managing acquisitions...” In the short run the firm experiences costs and risks in aggressively pursuing integration. However, in avoiding these costs, the opportunity to create synergies, which is often at least part of the rationale for merging, may be reduced or lost. In the long run, the accumulation of redundant business processes may be more difficult and costly to integrate.

Staffing and human resource management issues also are viewed as playing a critical role in M&A integration (Hunt and Downing, 1990). Appropriate levels of helpful communication as well as high quality human resource practices are advocated (Cartwright and Cooper, 1990, 1993; Nikandrou, Papalexandris, and Bourantas, 2000). This literature doesn't appear to address a number of related issues including how different sets of job levels might be recombine; how differently organized sets of job descriptions might be reorganized; how future staffing needs are determined and how existing staff are evaluated for fit with future positions; nor how to look for complementary skills for new team building or expanding tacit knowledge capabilities. The issues in these areas are likely to vary from one organizational specialty area to another and are of particular concern for the MIS function, even though other issues would apply to all personnel (e.g. compensation, reporting structure, and workplace fairness).

Cultural differences are also likely to influence the ease and success of integration efforts. In principle, more alike cultures should be easier to integrate, but complementary cultures may provide more opportunity to extend the range and power of the initial entities into a stronger emergent entity. Teerikangas and Very (2006) review literature showing mixed outcomes based on similar or different initial entity cultures. They consider both organizational and national culture and conclude that difficulties in grasping the multi-level nature of culture, the complex dynamics of the merger and acquisition process, and measurement issues contribute to diverse results. In essence, they point out the difficulties of predicting outcomes from an initial set of variables without considering the mediating effects of managerial actions and the “micro results” and feedback loops that derive from these.

Another view from the management literature is based on attribution theory. This theory holds that people attribute success to themselves and failure to external circumstances. This lens was used by Vaara (2002) to interpret understandings and judgments of different stakeholders regarding levels of merger and acquisition success. Such judgments may be important in explaining managerial policies and actions in anticipation of personal as well as organizational outcomes.

The finance and management literature pertaining to mergers and acquisitions suggest important roles for varying viewpoints among stakeholders. Personnel and culture are also noted as key influences on merger and acquisition outcomes.

MIS in Merger and Acquisition Integration

McKiernan and Merali (1995) and Shearer (2004) suggest that much of the failure of merger and acquisition integration results from poor management of information systems in the integration process. Issues include “definition of the new corporate information systems (IS), infrastructure requirements, the high cost of integration and development of information technology (IT) systems, and a reluctance to define both IS and IT in the ex-ante stage. (McKiernan and Merali, 1995, p. 55)”. Nevertheless, the literature is not extensive regarding the implementation of such integration.

One line of research has emphasized the relationship between overall merger integration strategy with the strategy for integrating MIS functions. MIS integration strategies include: (1) eliminating one approach and expanding the other for use by both former entities (absorption); (2) picking and choosing stronger elements from each approach (best of breed); or (3) defining a more optimal future approach and evolving both individual entities processes toward that new system (e.g. moving both original entities' marketing systems with a comprehensive CRM). These alternatives are consistent with those proposed by Wijnhoven, Spil, Stegwee, and Tjan A Fa (2006). Robertson and Powell (2001), based on three cases, examine the effect of overall integration strategy on MIS integration concluding that such strategies both “drive” and “constrain” integration processes. Johnston and Yetton (1996) examine two cases in Australia's banking industry and conclude that different merger strategies should yield different MIS integration strategies. However, Mehta and Hirschheim (2007) examine cases in the energy resources industry and find no pattern in practice to link specific merger strategies with different MIS integration strategies.

Another research line has targeted critical success factors leading to more successful MIS integration outcomes. Brown, Clancy, and Scholer (2003) describe the merger of Sallie Mae and another organization concluding with 14 critical success factors. This study describes both IT organizations prior to integration, key decisions at the point of merger, headquarters decisions, applications decisions, and staffing decisions. It also describes management of the integration over the first 12 months focusing on internal project management, data center relocation, and equipment movement. LeFave, Branch, Brown, and Wixom (2008) similarly describe the merger of Nextel and Sprint with a result of 6 critical success factors. The two sets of CSFs emphasize communications and tactics for integrating technologies, some of which are fairly idiosyncratic to the specific technologies in place prior to merger.

The prior literature in the MIS area on integration following mergers and acquisitions is limited. However the strategic alignment of the corporate and MIS integration strategies, communications, and consideration of strategies for integrating technologies emerge as potentially important influences on outcomes.

The purpose of this research paper is to explore in more depth the range of aspects involved in the integration of MIS functions during merger and acquisition activity. To that end, more specific questions include: How do firms define and measure successful integration following merger and acquisition? What are the apparent outcomes of varied strategies for MIS function integration following merger and acquisition? What specific actions and tactics facilitate efficient and effective MIS function integration following merger and acquisition? What specific actions and tactics facilitate efficient and effective MIS support for merged business processes and other organizational assets following merger and acquisition?

Method

Because this area of management of information systems has been little studied, it is appropriate to use an inductive approach which relies on observation of elemental phenomena in an attempt to recognize patterns. Such an approach begins with observations of phenomena and searches for meaningful patterns. This type of research can be based on the philosophical tenets of grounded theory (Glaser and Strauss, 1967; Locke 2000), where the intent is not to test pre-existing theory drawn from prior literature, but rather to take a fresh look at the domain. In this case prior literature is used as a background for understanding the domain and for determining whether prior research has already reached robust conclusions (e.g. such that more research isn't needed). It is not used to construct a priori categories or concepts as a basis for coding, as one would do with content analysis, for example. The purpose of this study is to seek emergent patterns that suggest potential robust relationships and propose these as a basis for theory building and testing within this domain.

To this end the researchers have conducted 14 interviews with MIS professionals across a wide range of job titles, industries, and size of firms (see Table 1 for demographic information about the study participants). Because the intention of this research is not to prove theory pertaining to a narrow topic, but rather to discover meaningful patterns, a wide range of respondents is appropriate. In this study participants range from CIOs and specialists in guiding merger and acquisition integration to project managers and SAP integration specialists. The varied levels within the organizational hierarchy reveal different concerns and perspectives on the overall phenomenon, including both planning and execution of tasks related to integration. All of the interviewees have participated in integration of the MIS function in at least one merger and/or acquisition.

A semi-formal interview protocol was developed to assure addressing the same range of questions across participants using a variety of open and closed ended questions. These questions were derived from a wide variety of sources including trade publications, literature on mergers and acquisitions in general, and the few studies found discussing the integration of MIS functions following mergers and acquisitions. The interview protocol is available upon request from the authors. This study reports on the data generated from these interviews. All interviews were transcribed then formatted into tables. Each author reviewed all comments examining them for explicit or implicit causal relationships. For example, a respondent may state that integrating data across organizations is aided by use of special software tools. This would lead to the identification of a "critical success factor" in terms of integration of data across MIS functions. Once such comments were identified, they were grouped into factors discussed in the results section. This approach differs from a formal grounded theory analysis in that it reports on relationships as identified by the informants rather than construct relationships based on iterations of coding and category reduction. However, it is consistent with the qualitative analysis technique of causal networking in the special case where only binary relationships are documented (see Miles and Huberman, 1994, pp 151-163).

Most interviewees had participated in more than one merger or acquisition, sometimes dozens, and from membership at times in the acquiring and other times acquired firm. As a result most interviewees provided a mixture of observations regarding their conclusions based on multiple experiences and those based on particular experiences. It is difficult to sort each of these into neat categories during the give and take of a live interview. Ultimately, however, we consider that having asked respondents to provide information based on all of their experience was likely to lead to a larger volume and greater range of insights that outweighed the value of strict focus on single projects.

Table 1: Demographics Information about Study Participants

Company	Title	Company Size	Industry	Levels	Degree	Years Experience	Reporting Employees	# Mergers
A	Director of IT	small	manufacturing	1	Masters Engineering	8.5	4	2
B	CIO	small	Equipment leasing	1	BA	8	40	6
C1 and C2	Manager of IT for Safety, Security, and Protection Services Business.	Fortune 50	Diversified manufacturing	2	MBA	27	20	dozens
	IT Manager for Displaying Graphics Business and Mergers and Acquisitions			2	BA	27	44	
D	Retired Senior VP and CIO	large	transportation	1	PhD	21	250+	3
E	Programmer/Analyst	large	agriculture	3-4	MBA	20	0	1
F	Telecom analyst	medium	manufacturing	5	MBA	10	0	3 + 2 spinoffs
G	Manager of IT acquisition and integration	Fortune 50	telecom	6	BA chemistry	10	3	70
H	VP and CIO	large	manufacturing	2	MBA	5 in IT	2500	6-7
I	Retired head of R&D and Information Technology	large	pharmaceutical	1-3	PhD physics	x	300 (peak)	5
J	Senior analyst	large	Financial	4	MBA	5.5	Only indirect	3
K	Senior telecom officer	large	SW Manufacturing	3	PhD	25	10-12 (peak)	1
L	Manager consultant	Fortune 50	Information technology	6-7	Masters economics	14-15	6-7	1
M	Service launch manager	large	Information services	5-6	MBA	4	5-10	1
N	Assistant VP	large	financial	3-4	BA	13	Only indirect	2

Once critical success factors (CSFs) were accumulated for each transcript, they were grouped in 14 distinct but interrelated categories. These categories were derived from integration of categories observed by each of the researchers. The discussion that follows considers the CSFs for each of these categories.

Results

Identified Factors

Varied Definitions of Positive Outcomes Follow Different Stakeholder Interests

What does it mean to have a successful integration of the MIS function? As a complex task, the integration of MIS following merger and acquisition leads to many outcomes. In some cases the labelling of some outcomes as successful is pretty clear. For example, positive financial outcomes in the short or long run are clear indicators of success. Other outcomes, for example retention of key personnel, are more ambiguous. This is because firms differ in their retention goals, and retained individuals may evaluate the outcome differently than those released. In this study four organizations did not retain any IT workers following the merger or acquisition with mixed results. In one case, most IT work was shifted to the infrastructure of the acquiring firm and, as it was located several hundred miles from the acquired firm and demand for IT workers was strong, no one chose to move to the new combined headquarters. In another case, IT developers were confronted with a change in culture from one that was technically oriented to another that was more marketing oriented, and, over a period of time, all acquired firm employees were gone. The respondent considered this a particularly unsuccessful merger reporting virtually all value from the original acquired organization to have been dissipated over time.

Outcomes are also difficult to separate into success of the merger for the company and success of the integration of IT. We've separated these into three categories in considering specific outcomes of interest (see Table 2). Some outcomes are specific to the emergent IT function. Key outcomes included more opportunities for learning and participation in the business for IT workers. These were observed mostly, but not exclusively, for IT workers moving from smaller acquired firms to larger acquiring ones. One respondent involved in the mechanics of an IT integration reported that outcomes were evaluated largely by "on time and on budget" considerations at one firm; however, scope and quality were severely diminished to achieve these goals. The respondent anticipated significant continued difficulties for fulfilling organizational demand for information continuing after the "successful" integration. For IT workers it is also important to make a contribution to the overall success of the firm. Bridging IT and firm outcomes were initiating cost savings specifically due to integration of infrastructures and applications, as well as value to the firm from retention of key personnel (or, stated negatively, the leaching of value if knowledge carrying personnel slip away).

Firm/title	Table 2: Outcomes – Illustrative Comments
J, Senior Analyst	"On budget and on time."
A, Director of IT	Well, from my point of view, for IT in particular is that we've really grown as an organization. We've moved from being just the computer fixers to really being a key part of the company's strategy for success. (pause) You know, now we are a ... there is a ... we do our annual business plan, you've got a sales section, an operations section, we have an IT section. Part of our business strategy every year is what are we doing with our information systems to help us succeed.

Considering the overall firm's outcomes, key responses included shareholder value, increased sales, helping the firm to grow and new products, which were only indirectly affected by the MIS integration. One interesting observation noted that the merger changed the overall financial statements of the organization without necessarily changing the underlying business model. This was in a particular setting where very low levels of MIS integration were sought, and the merger was motivated more by expanding geographical territory than by achieving operational synergies.

Metrics for the Contribution of MIS Integration to M&A Success are Rarely Formally Undertaken

Projects within and outside of MIS are frequently assessed based on cost and time (see Table 3). These were the predominant measures indicated by respondents. However, service levels and ratio of service level to cost was also observed. In some cases workers at the tactical level reported successful on time and at budget projects that had scaled back original scope and quality objectives. In these cases successful projects may be quite expensive in production and maintenance phases. From an MIS perspective, it is concerning how infrequently formal measurement of MIS performance is part of the assessment of integration outcomes. In some cases there was little concern for the MIS integration success per se only for the overall financial performance of the firm following the

overall integration. As a result it is in most cases difficult to determine the contribution of MIS integration success with overall merger success. Respondents also mention collecting data as one mechanisms for evaluating integration effects; others mentioned continued MIS performance measures, as well as comparison between actualized versus projected outcomes. Although some respondents interpreted questions about measures by assessing how well their mergers or acquisitions went, few were able to state clearly a net result of the integration effort. To some extent this is because a number of interviewees were still in the midst of the integration effort; in other cases it was because the respondents were not privy to all information regarding merger outcomes.

Firm/title	Table 3: Measures/metrics of Merger Success – Illustrative Comments
L, Manager Consultant	“Yes. In that project charter that described the expected results and in each aspect, time-wise, resource-wise, cost-wise, all this aspects were described and measured.” “In some cases you’d say that we will save this many hours. In some cases you say we will say this much money if we change this process. But yes, it was all measured.”
J, Senior Analyst	“How much maintenance will be.” “I would say by cost because all the projects are funded. They go by funding.” “How the systems are up and running.”
G, Manager of IT acquisition and integration	“That’s something we haven’t done well in terms of doing an ROI on the deals...One is that we tend to go after companies that are orders of magnitude smaller than us so the costs become almost insignificant when you look at the dollar cost of the deal... So, we have some costing ROI information but we haven’t done a great job because it hasn’t come up for us in a significant manner.”

Within Legal Constraints, More Pre-merger Planning & Preparation Appear Helpful for Smooth Integration

As explained by several respondents, MIS specialists are frequently left out of negotiations prior to the merger. This is due to the need for closely holding information about the merger or acquisition confidential in accord with regulatory requirements. On the other hand, earlier and more thorough participation is seen as a key success factor leading to better, quicker MIS function integrations (see Table 4). While most of the respondents focused on the methods for pre-merger preparations, some content areas were noted. Discussions about the nature of the future emergent system, key personnel and leadership directions, and methods to support business process on new systems were among these topics. Several respondents keep checklists for various types of information to gather in assessing the acquisition target. These checklists tend to be individual rather than organizational in scope. They tend to be helpful for the bulk of issues, but in each acquisition surprises tend to arise. As noted by one respondent, pre-merger due diligence focuses both on technologies and personnel. One respondent pointed out that it is important to understand the complexity of the technology to adequately estimate the value of the knowledge embodied in the personnel who are familiar with it. Another respondent emphasized that gathering helpful information prior to the acquisition is difficult and suggesting asking all the checklist questions then “keep asking questions.”

Firm/title	Table 4: Pre-merger Preparations – Illustrative Comments
N, Assistant VP	“Yes. Definitely, information technologies is one of the key areas used for the planning purposes of any merger.”
H, VP and CIO	We helped facilitate the discussions, what’s the best way to go, as well as helping guide them on how you make such decisions around the systems, sometimes it isn’t one or the other... (in another merger) those guys came in with a prescription of what was going to happen. Here was the approach.”
G, Manager of IT acquisition and integration	“You know, I spoke to the kind of misalignment with leadership’s goals and integration goals. ...Having that executive alignment upfront is just ... if you’ve got that, you’re halfway there.”

Companies Tend to Assess Integration Opportunities as They Arise Rather than Apply a Pre-selected Integration Strategy

One of the most studied topics regarding integration of the MIS function after merger and acquisition is the relationship between strategy or approach and success. Mehta and Hirschheim (2007), for example, examined the alignment of overall corporate merger strategies and MIS integration strategies and found no evidence of a systemic

relationship. Based on the collection of comments by respondents, it would appear that organizations rarely if ever selected an overall integration strategy then followed through with consistent decisions based on that strategy (see Table 5) Rather, approaches were taken pragmatically component by component with a strategy sometimes emergent in retrospect. This was stated clearly by the representative of a Fortune 500 company that acquires many smaller businesses. Their approach to applications is "best of breed" to continue supporting a wide range of business processes; however, their approach to infrastructure is "absorption," largely to gain from economies of scale and standardization. It is also noted that strategy may blend absorption with seeking an overall upgrade moving in stages. Strategy, in terms of eventually deciding who's in charge and how decisions will be made, was viewed as critical to positive outcomes in at least one case.

Firm/title	Table 5: Integration Strategies – Illustrative Comments
C2, IT Manager	I would say it's closer to a best of breed. Now we do go in and generally implement all our infrastructure standards. So the infrastructure I would say is the target company coming on to our infrastructure standards. From an application point of view which really follows the business process of both companies
A, Director of IT	No, [we just absorbed the IT of the acquired firm] we just found that because we are – and that's just the emphasis our company has placed – but we're farther ahead in our information systems development that we were so much farther ahead of these other companies, the smartest thing to do was to bring them up to where we were.

The Cadence of IS Integration is Important and Should be Balanced between Fast and Slow

Ironically, in two cases timing led to difficulties in implementation of the integration (see Table 6). In one of these cases, the firms tried to integrate too quickly leading to many false directions and much rework. In the other case, firms integrated too slowly, leading to missing a window of opportunity when employees expect changes. It would be fair to conclude that timing is important, but quite situationally dependent. There are risks from going too fast or too slow. It was also interesting that some respondents noted the sequential nature of the implementation process. In some cases particular decisions needed to precede implementation. Where the decisions took longer, implementation did as well. For example, there is no point buying telecommunications lines where it is uncertain if the plant or office is going to be retained. Finally, in one case of a large company acquiring many smaller ones, having many changes simultaneously ready for implementation on "Day One" of the changeover was viewed as critical.

Firm/title	Table 6: Timing of Integration Implementation – Illustrative Comments
A, Director of IT	We began the consolidation of the IT systems on Day 1 and, as a result, we didn't have the time we needed to get to understand their culture and their capabilities so we trained them on the basics, on how to use the system, but we didn't know that we needed to talk about differences in terminologies; we didn't know there were people who needed basic PC skills, and so there was a lot of things that if we had spent six months just getting to know each other and having a sort of a honeymoon period that we would have done a lot better job I think.
C2, IT Manager	If you do nothing and say try to come back a year later, they're re-entrenched into what they've done in the past and it's very difficult and it takes a lot more time to get integration done at that point.

Personnel Integration is a Key Success Factor, Save where the MIS from an Entire Organization is being Discarded

The general management literature on mergers and acquisitions emphasizes the importance of retaining key employees after integration. While the retention of "key" employees is viewed as important, many mergers and acquisitions intend to save costs by consolidating functions across the merging entities, which often includes reducing headcount. Firms in general, therefore, have the complex objective of retaining some employees while releasing others. Critical success factors pertaining to personnel, therefore, emphasize processes for distinguishing which personnel to keep as well as techniques to in fact retain them (see Table 7). Much of this mirrors general human resource management principles; however, a few additional observations pertain more specifically to MIS workers. Where mergers did not seem to work very well, this facet of integration was generally not viewed as having worked very well either.

Firm/title	Table 7: Personnel CSFs -- Illustrative Comments
L, Manager Consultant	“...it is important to pick the right set of resources...it’s just the ability to pick the right set of people, to pick the tasks...Sometimes it’s a challenge because there’s a high demand of the skill set it’s hard to find the necessary people... Just to fill in the specific role, the skill set to do the task.”
E, Programmer/ Analyst	That’s been pretty bad. Well, it depends on who you would call key personnel. The key personnel at the acquiring firm stayed. The key personnel at the acquired firm, most of them have gone which is very sad. I know that is not what our president intended.

General human resource issues that firms need to address pertaining to integration of MIS workforces include assessment of salaries and pay grades but, perhaps more importantly for long term productivity, need to address job design issues. Several respondents commented that acquired firm MIS employees found greater opportunity and broader career paths with the acquiring firm. Expansion of opportunities, for some personnel, was noted as a tactic that can create significant loyalty to the emergent organization. This was especially noted by firms that acquire many smaller organizations. Others observed that bonuses were helpful in keeping acquired firm employees through a transition period, even with looming release ahead. Such retention of personnel was important for absorbing knowledge regarding applications and specialized tools. Contract workers, in another case, were retained for the same knowledge transfer purpose, then released as the permanent employees gained understanding of the systems. In a number of cases, particularly where the goal is the absorption of the acquired firm, all employees of the MIS area of the acquired firm were released. In these cases, the transaction processing and other MIS functions were transferred to the acquiring firm’s systems. During the same integration, regardless of overall strategy, MIS personnel may be either retained or released independently from the treatment of marketing or accounting personnel, for example. From a more operational level, the most frequent tactic for evaluating the staff of the acquired firm is through interviews. Implicitly the skill needs for the future integrated function are estimated with individuals matched based on their skills to future needs. As one respondent pointed out, such a system may undervalue MIS workers who perform their function with excellence, but are not skilled at interviewing. This respondent also proposed the untested approach of embedding MIS personnel from the acquired firm with the acquired group personnel as a way to assess technical skills as well as cultural fit.

As a final note regarding personnel, several respondents pointed to harsh and, perhaps, unethical treatment during the integration process. For example, according to one respondent, in one firm severance bonuses were promised to anyone laid off, however, the strategy appeared to be shrinking job opportunities and creating unpleasant working conditions in order to push workers to leave voluntarily, thus getting rid of the workers without having to pay severance. From a financial perspective such actions may indeed be successful; however, the literature on employment “survivors” suggests that such behaviors are not forgotten by retained workers.

Culture is an Important Factor in Integration but has Multiple Facets that May Vary Independently

There were few factors more universally viewed as critical for the success of an MIS integration than culture. This shows up in the management and international business literatures, as well as in the data of this study (see Table 8). However, there were also numerous dimensions along which culture could vary. Different respondents described cultural differences in terms of “entrepreneurial versus reactive [researcher’s terms]” and “service-oriented versus technology-oriented”. Some described cultures as laid-back versus aggressive. Organizations tend to vary in amount of “politicization”, the timing and speed, and centralization of decision making. Also organizational MIS units vary greatly on amount of outsourcing and contract labor used to supplement full-time staff. Although not frequently seen in interviews so far, where organizations vary greatly on their attitudes toward outsourcing, this provides special concerns for the integration of MIS functions. This is reflected in the findings of Mehta and Hirschheim (2007). Where the acquired and acquiring firms vary greatly in these areas, they have a more challenging process to create integration in the new entity. The research team noted how often respondents’ preferred culture was described in neutral words and the “other” culture in relatively pejorative ones. Sometimes the blending of cultures is a desired approach; other times it is maintenance of what is seen as the more effective culture. Where blending is the objective, few interventions seem to be formally specified beyond “spending time together” and getting individuals to work out collaboration.

Firm/title	Table 8: Corporate Culture of Acquired/acquiring Firms – Illustrative Examples
A, Director of IT	There were differences in terms of culture. The one that had IT ... it happened to be also the one that was the keep your heads down company -- and they didn't have the kind of customer service, customer focus that we had. Because we were part of an organization that was very highly customer focused. Your sales people and the people you support, if they're doing that for their customers, they're expecting you to do that for them.
C2, IT Manager	Yeah. I think and granted I might be biased but IT touches everything when it comes to an acquisition. So, from an IT point of view and a culture point of view, even if the company you're acquiring has a different culture, their IT group spends so much time working with the Company X IT group that there develops a really good working relationship there and I think a mutual respect over time because both sides are engaged in so much of the business process that it turns out we work together quite a bit longer throughout the integration project than say HR would. I mean, they get in early and as soon as they're done, they're out early. I mean, it's just the nature of their function. Sourcing is somewhat similar. We just spend more time together.

Virtually all respondents point to cultural difference as a key block to successful integration. The cultures of the firms overall may determine success of the merger. Although cultures of the MIS operations do not always reflect the overall firm culture, most respondents did not make a clear distinction between the IT culture and general firm culture.

Quality Communication Can Reduce Uncertainty and Lead to Better Outcomes

As might be expected, communication between acquiring and acquired firms varied greatly in approach (see Table 9). In some cases, honest but sometimes unpleasant messages were frankly conveyed; in others pleasant but ultimately indirect messages created distrust and antipathy among workers. Some respondents were clear in expressing the difficulty of communicating clear and helpful messages in the midst of a situation where there is much uncertainty and many important decisions are pending. In cases where many different media were used, it seemed that clearer and more direct communication was also undertaken. However, in some cases a good deal of "lightweight" communication was not viewed as helping the situation. As a general principle, it would seem that message quality (in terms of accuracy, even if conveying some uncertainty) is a more effective measure of communication having positive effects on integration than message quantity.

Company	Table 9: Communication– Illustrative comments
L, Manager Consultant	“. I don't think there were any major conflicts because we had the team which got specific directions from what should be done so we were working on the same goal.”
K, Senior Telecom Officer	“So their communications was good but their execution was poor.... The follow-through and the execution of whatever they said was not good. In terms of just talking, they were good at that. They had meetings. You could go into people's offices and communicate with them. It just seemed like after a while you just couldn't believe necessarily what they'd say back to you so it wasn't”

Resolving Conflict is Important for Smooth Integration, but Rarely Directly Addressed in the Process

The relationship of conflict resolution to ultimate integration outcomes is not completely clear. In several of the cases where either conflict was resolved by fiat or where conflict was ignored, either the merger did not go well or the financials went smoothly, but either acquired staff were bitter or were not retained (in large numbers or completely). In contrast, the case where conflict is resolved by discussion, the acquisitions were ultimately successful, several MIS staff, but not all, from the acquired firms were retained; however, there was still variance in the costs and stresses of the integration process. Some tactics mentioned included reducing the potential for conflict by allowing the acquired firm the ability to retain tools that supported unique business process and moving conflict up to higher levels in the organizational hierarchy. As a working approach, it is difficult to envision a situation where conscious and positive conflict resolution is practiced that this wouldn't result in better outcomes in terms of morale, which should at least correlate with, if not determine, financial success. On the other hand, the lack of such conflict resolution execution may, in some cases, have little long term effect on ultimate outcomes.

Technical Decisions and Actions are Critical in Integration, in Addition to Managerial Skills

While many of the CSFs pertaining to integration of MIS after mergers and acquisitions revolve around personnel and culture, it was expected that some would also involve technology and the management of changes in technology (see Table 10). This is an area that depends so much on the details of pre-existing systems in the acquiring and acquired firms that generalizations are difficult to find without significant exceptions. Overall, the narrower the divide between both technology and data between the acquired and acquiring firms, the easier the integration will be. Also the more standardized the acquiring firm has its own MIS systems, the easier time it has moving smaller acquired firms to a centralized platform. In general, the similarities in underlying business needs result in an easier time integrating business MIS than blending the IT that is a product itself or is embedded in the organization’s products. In several cases, opportunities were taken to move both firms toward a new platform, particularly as regarding ERP systems. In other cases, less sophisticated systems used by the acquired firms are more or less abandoned. When there are differences in the use of outsourcing versus in-house MIS functions, the in-house may propose running the emergent firm MIS function. In at least one case, the in-house MIS proposal was less expensive than that of the outsourced firm. Another source of cost savings involves cancelling projects that will have only incidental benefit to the new emergent firm.

Firm/title	Table 10: Technology and Mgmt of Tech Changes in Merger Process – Illustrative Comments
L, Manager Consultant	Oh, it’s just a set of templates that part of, for example, are methodology to do the... so it’s like a multi-layer template where you do this exercise but finally you get the document that tells you all this asset records here should ultimately flow into this class on the Chevron side. There’s a conversion process that results ...”
H, VP and CIO	Integrating infrastructure: “No, you know, that one, there’s really in a way only one way to do it. It’s more about everyone knowing the right thing to do, it’s timing, it’s drive... no, I mean it’s just kind of a pretty straightforward process. It’s pretty obvious the things that you need to do, it’s almost a checklist of things... Here are things that we need to be thinking about... no big deal. You just got to make sure; you just check them off, just do them.”

Integrating Data Can be a Difficult and Expensive Task where either Tools or Archival Strategies are Helpful

Integrating data can be a large part of the integration work (see Table 11). Sometimes this is handled by MIS personnel, sometimes by business personnel. Tools can help with the mechanics of this task. As the firms’ business processes are similar, data can be more easily integrated or left separate without ill effects. In at least one case, underlying systems were left intact with interfaces built to direct work to the appropriate application. Vendor acquired tools can help with the mechanics of moving and integrating data at the physical level.

Firm/title	Table 11: Data Integration – Illustrative Examples
A, Director of IT	There was a lot of work that had to be done on cleaning up data. In all of the acquisitions there was a lot of work that had to be done on manufacturing costs in particular.
E, Programmer/Analyst	No, it was more ... for a long time we kept everything separate. They had their order entry system and we had ours. If an order came in for one type of product, the system knew which plant that had to go to so we would just export it into their system. But as far as a lot of the data, it wasn’t immediately integrated.

Intellectual Property is a Minor Consideration in Integration beyond Compliance with Legal Standards

This was viewed as important in some cases when evaluating acquired firms who are producers of software for sale (see Table 12). Companies considered both the potential for external entities to infringe on the assets to be acquired and the potential for sustained protections for acquired assets. However, the only issue for MIS business function integration was seen as making sure that all license agreements are fulfilled.

Firm/title	Table 12: Intellectual Property – Illustrative Comment
A, Director of IT	Those [intellectual property] weren’t really issues. Since we’re fabricators we don’t tend to have a lot in the way of intellectual property.

Learning during Integration is Important When Targeted at the Level of Individual Managers

Clearly the ability to quickly and effectively learn from one merger experience to the next is a critical success factor in developing greater capacity to integrate MIS functions. However, this is an area generally left to ad hoc efforts by individuals involved in multiple processes (see Table 13). Some organizations that purchase many companies have developed a procedure for managing their integrations. In one case a set of “tiger teams” move through a prescribed set of activities aimed at assessing hardware, licenses, procedures, and personnel then acting toward building the new combined structure. However, even in this case the respondents emphasized that all mergers hold surprises – some positive, like systems that perform tasks or perform them better than the acquiring firm was aware of, and others negative, like systems with weaker than expected controls and governance. The key, according to this respondent, is moving through the structured program but with sufficient flexibility to take advantage of serendipitous benefits and minimize negative surprises. Some organizational efforts were observed in the practice of building documentation where none existed for systems to be used by the emergent organization. Other learning efforts involved using the MIS applications to better understand details of both sides’ business processes, in search of embedding more effective processes and support for processes in emergent new applications systems. Checklists were frequently mentioned but handled by individuals rather than through a corporate knowledge management system. As a cautionary note, one downside of poor relations between acquired and acquiring firm personnel can appear in the reluctant, inaccurate, or absent information to be transferred from acquired to acquiring firm personnel.

Firm/title	Table 13: Learning from Merger Process -- Illustrative Comments
G, Manager of IT Acquisition and Integration	“You know, we certainly have a number of templates and things like that that we update and kind of ... I had my own lessons learned document that I kind of when things come up, ... but I don’t know about any other kind of formal tracking internally.” “No, not that I’m aware of.”
A, Director of IT	Yes, particularly one of the plants, the one out on our west coast. The group of folks that they have are particularly good at finding efficient ways to do things. And a lot of our IT practices in terms of how we use our ERP system have come from them by finding out what they’re doing and looking at ours. Theirs was a lot better than we were doing it [here] so we actually adopt those practices here.

Serendipity is Critical for High Tech Mergers in General, yet Minor for Merging MIS Functions

Graebner (2004) found that successful mergers and acquisitions in the high technology domain all experienced significant unexpected benefits in terms of staff learning opportunities or means to lower cost mechanisms for providing services. Although opportunities for serendipity are an important source of benefit, these were not generally observed in the integration of MIS unit functions (see Table 14). Some of the larger companies expressed the opinion that their own confidence might inhibit absorbing improvements from smaller acquired firms. It is possible that such benefits are more likely to be found in the high tech industry where firms are using MIS embedded in systems or as products themselves rather than in other industries where integration of MIS is largely in the realm of providing support for business processes.

Firm/title	Table 14: Serendipity – Illustrative Comments
N, Assistant VP	“There were a lot of opportunities that were taken advantage of in building better systems, re-writing existing systems and latest technology, things like that so those type of benefits happened during that first merger.”
E, Programmer/Analyst	I can’t think of anything. I know I come off very negative when I talk about this whole thing. There were good things that came out but I don’t think they were unexpected. We had strengths and they had strengths and some of those actually were really starting to come out when I left.

Emergent Factors

Leadership Quality and Governance are Important Influences on Outcomes

Organizations take different approaches to the leadership of the integration effort. This topic was emergent from the comments of the interviewees, but was not inquired about directly in this round of interviews (see Table 15). This needs to be added to future interview protocols.

Firm/title	Table 15: Leadership – Illustrative Comments
K, Senior Telecom Officer	“Umn ... I guess it’s important to know the chain of command, as it were ... And for the organization it’s surely important but from the developer standpoint, the I’m doing my job kind of guy, it might be a little less important other than who do I need to report to and who’s going to help me do my job, make sure that I have all the tools and things like that I need to do my job.”
H, VP and CIO	“... when any one of these deals comes along, a person from that group is assigned to lead and facilitate the IT integration depending on what the situation with that particular effort ...”

Clarity in Roles for MIS Workers and Managers can be Helpful

One topic, which did not appear in our initial list of CSF categories but appears to be an important influence on outcomes, at least in some cases, is role definition. Multiple respondents mentioned the importance of knowing who is charged with decision making and understanding what their own tasks and obligations are in the integration. This topic relates to both human resource management in defining jobs and to communication in clarifying and explaining individuals positions and how they fit together with others. Such role definition is an important and well-recognized component in change management programs, but may be overlooked where such change management is not formally incorporated in the integration process.

Relative Size of the Acquired and Acquiring Firms Differentiates Factors’ Influence on Outcomes

The merger or acquisition of evenly sized entities, either large purchasing large or small purchasing small, differs from large entities purchasing smaller ones. In the latter case, the purchasing organization can set up task forces and regular procedures to minimize the difficulty of such integration and regularize procedures. Generally with this situation, the authority for action is in the hands of the larger firm, this is universally recognized, and the issue becomes one of most effectively creating the new MIS entity. It can become a challenge in this environment for the acquiring entity to insure that it is carefully screening in the beneficial practices, employees, and assets of the acquired firm. In the evenly matched integration, many more issues need resolution before the integration of MIS functions can move forward from a more technical perspective. It is often not clear how the overall new entity will operate, where lines of authority will run, and what the new culture will be like. The unresolved nature of these issues creates uncertainty about the larger needs and preferences that will structure MIS decisions. As a result, the integration of MIS may be slower, may take steps that need subsequent reversal, and may risk losing opportunities for retaining personnel, improving systems and services, and taking advantage of new license opportunities.

Other Factors Relating to Outcomes

Even defining preferred outcomes is itself a significant task. In the situation most of us know what outcomes we are after, but don’t always consider that other stakeholders hold goals that may differ marginally or significantly. In addition to speaking to the nature of outcomes and describing what was done in terms of many factors that are likely to influence the outcomes of integration, many respondent statements directly linked specific factors to outcomes. Implicitly all of the factors described above are thought to lead, when well applied, to better outcomes. However a few additional points that did not fit smoothly into the formal protocol also emerged. These include (1) observing the importance of effective use of consultants both to supplement peak staffing to handle boosted workload, but also to provide expertise in both strategic and operational issues in integration and (2) the relationship between the alignment of business goals for the integration with operational executions. In one case it was described how indecisiveness about the business goals led to delays in operationalization that pushed actions based the initial window of employee openness to change and led to considerable extra work and expense in achieving the intended integration.

Conclusions

In spite of the regularity of some observations, across the set of interviews few if any tactics appear work in any and all conditions. Some, such as bonuses to retain key personnel, may be effective in some circumstances, but may not work or are not used in other contexts. Perhaps even more dramatically, in some cases hurried integration has led to large mistakes, while delayed integration has missed opportunities.

MIS integration is quite different for firms in the MIS industry and those supporting non-MIS products. These differences are manifest in at least two areas. Serendipity is a much more critical issue when integrating MIS in products, as the level of innovation is directly related to firm offerings and, therefore, revenue. This is the case both in terms of the product and its means of production, such as with development tools, quality assurance, or development methods. On the other hand, while the data and technologies supporting the business may vary between firms to differing degrees, much will be similar, such as required accounting information. One respondent working for a firm with mergers and acquisitions involving both MIS and non-MIS partners pointed out clearly that the development standards differ significantly in MIS products from tools to support internal business process. Intellectual property is also a major issue for firms with MIS products, both in terms of the value of proprietary assets and the potential for liabilities in using assets in their own products. No systematic differences were found between other industries such as manufacturing, consumer products, and financial services in the way they performed or ought to perform integration of MIS functions.

Toward a Basis for Theory

The purpose of an inductive study is theory building. The results of one set of observations cannot confirm the robustness or pervasiveness of patterns in organizational phenomena, but at their best, they do surface patterns that can serve as a basis for targeted further examination. Toward this end, we propose the following:

Strategy: The approach of discarding an acquired organization's MIS function will be used when the acquiring firm views its own MIS function as more advanced and will minimize difficulties in integrating technology, personnel, and culture. It will, however, have the potential of lost opportunity where large or small nuggets of "best practice" exist in the acquired firm's MIS function. Other integrations appear to be driven by a series of pragmatic decisions at the component level based on the quality and observed value of specific assets.

Culture: Where acquired and acquiring firms are perceived to be similar in culture, difficulties in integration will be minimized. Where firms differ in culture, these differences can relate to a range of dimensions including decision making, aggressiveness, and communication styles. The greater these differences are perceived to be, the more difficulties will be experienced in integration; focused effort to diminish these cultural differences may be helpful in lessening difficulty of integration where cultures vary greatly.

Timing: In general, best results follow quick change processes while the employees are "unfrozen" in attitudes; however, a process of intelligence gathering and understanding of assets is an essential precursor for change to avoid large errors.

Technology: Where large firms are acquiring smaller ones, a dedicated effort is required to retain unexpected technical advantages; where firms have built ERP or other integrative systems on similar platforms, higher levels of customization will undermine ease of integration; where the acquired firm has a more sophisticated technology platform, organizations will move toward its use even if other parts of the acquired organization are abandoned; use of appropriate tools can aid in smooth integration of data and data structures.

Future Research

Emergent from the analysis of data in this study are many observations pertaining to the relationship of various factors on outcomes of integration efforts. Hopefully, some of these observations will be new to those in practice in this area, and many will be introduced to the research literature. We strongly advocate continued exploration of key factors and relationships in this domain and the eventual testing of emergent theory using the entire range of research methods and paradigms available. Additionally, we observe that there is a potential that the merger and acquisition integration shares some characteristics with other types of integration, for example departments or technical architectures within a large firm, and with other types of inter-organizational MIS function provision, for example with general outsourcing, vendor relationships, and governance approaches. These various potential linkages, however, go beyond the scope of this particular research but can potentially lead to useful insights and parsimonious theories regarding a range of MIS management issues. Future research on these topics can potentially be enhanced by additional analysis based on formal stages of coding and by examination of frequencies and central tendencies where using representative sampling techniques. More specific to this study, however, our observations raise a host of new questions. We focus attention on five areas in which questions of particular interest are uncovered in this study.

First, although the findings from this study suggest that organizational merger strategy and MIS integration strategies are important influences on many decisions and actions that follow, new questions are raised concerning the processes by which such strategies are selected, the degree to which selected strategies organize subsequent decisions (rather than provide a post hoc explanation), and whether there are precursor conditions for determining best lines of strategy to pursue.

Second, although MIS personnel play a key role in successful integration efforts, the unexpected number and vigor of 'complaints' about ill treatment by some respondents, particularly from acquired firms, suggests value in better understanding the role of "workplace justice" on various HR outcomes including productivity and retention. Although MIS workers resemble personnel in general, particularities of MIS work, such as responding to constantly updated technologies, create stresses and opportunities that vary from those in many other lines of work. Where the goal of firms is to retain key personnel, are there better ways to incorporate compensation, job design, and career paths for more effective human resource programs?

Third, formal measures and metrics for the costs and benefits directly related to integration of MIS appear to be rarely used, yet improvement in this area was sometimes stated as a goal by respondents. When formal measures are used, do their benefits in control and feedback outweigh their costs in time and overhead? Are there particular metrics that yield more value at lower cost to obtain than others?

Fourth, where direct and positive conflict resolution strategies were executed, results were generally positive, whereas in cases where conflict resolution was either ignored or driven by fiat, results were mixed. Are formal conflict resolution approaches helpful in smoothing the integration of MIS functions following mergers and acquisitions? Are there particular programs that yield more benefits relative to their costs and potential risks?

Fifth, given that learning from integration processes were frequently reported but mostly ad hoc, informal and individual it would be of interest to investigate what inhibits more formal programs for acquiring and transferring knowledge in this area. What tactics and tools provide the maximum leverage in acquiring and transferring knowledge about integration of MIS functions following mergers and acquisitions? Are there ways to implement such programs in a cost effective manner?

In sum, in searching for critical success factors leading to better outcomes from the integration of MIS functional areas, this research unearthed a wealth of actions and policies that apparently lead to better or worse outcomes in particular circumstances. Many of these observations held in multiple circumstances, others did not. Prior to formulating a set of prescriptions for managers to follow in enacting integration of MIS functions during mergers and acquisitions, an understanding of the appropriate contingencies is needed to show the boundary conditions within which particular advice can reliably be expected to pertain. It is our hope that this study adds to a process of identifying key areas of focus for merger integrators and a starting point for prescribing a useful set of injunctions with specification regarding the circumstances under which they are likely to apply. Even still, the observation of critical success factors may only serve as a starting point for execution that requires clear observation of facts as well as persistence, patience, and skill in application.

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