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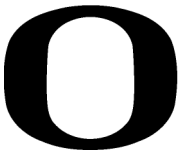

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The Value of the IT Division in a Merger and Acquisition Process

CAPSTONE REPORT

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Abstract

CIOs are often required to develop and implement merger and acquisition strategies to produce revenue and growth (Battey, 2000)**.** Literature published between 1986 and 2011 is examined to identify the growing role of IT in the merger and acquisition process as a means of decreasing risk and project costs, and increasing corporate synergies and project success. The goal is to demonstrate the value of IT as part of the early core deal-making team.

Keywords: mergers and acquisitions, risk reduction, information technology, due diligence integration manager

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Introduction to the Annotated Bibliography

Problem

According to Greengard (1999), "at some point probably sooner rather than later, a company will find itself eyeing another enterprise – desperately trying to make sense of physical assets, intellectual property, legalities, pay, benefits, and culture" (p. 68). Merger and acquisition (M&A) activity has been growing for the last 100 years or so and "most experts agree that M&A activity comes in waves which coincide with surges in economic activity" (Vielba & Vielba, 2006, p. 18). According to UNCTAD (as cited in Reuer, Shenkar, & Ragozzino, 2004), "international mergers and acquisitions (M&As) have become a primary mode of internationalization in recent years" (p. 19). Indeed, the merger and acquisition wave of the mid-to-late 1980's broke most records for volume and value of activity (McKiernan & Merali, 1995). After cutbacks in 2001, "M&A activity has steadily increased for the past few years" (Galpin & Herndon, 2007, p. 2).

There are many reasons why a company would engage in the M&A process. As stated by Vielba and Vielba (2006), "the most powerful arguments cited by those seeking to acquire or expand through merger are economies of scale, diversification, access to new customers and markets, and the acquisition of knowledge and technology" (p. 20). Stylianou, Jeffries, and Robbins (1996) explain that:

> Organizations recognize that mergers and acquisitions can be used to achieve readily and quickly some or all of the following goals: rapid growth in size and strength; increased market share; acquisition of new products, patents, technologies, talent; and/or

> geographical territories. Mergers and acquisitions can also help achieve economies and efficiencies on a large scale. (p. 203)

Tetenbaum (2003) furthers the discussion by describing the process of a merger and acquisition as the following steps:

> The merger and acquisition process begins with identification of an opportunity and, if there is interest by both parties, moves to negotiation. Once a tentative agreement is reached, the process moves to due diligence during which time the acquirer ensures that assumptions made and information attained earlier were, in fact, correct. Only then does the focus shift from the financial, strategic arena to planning for the integration of both companies' policies, systems, structures, people, and culture. (p. 25)

However, historically things have not always gone well during M&A. If the combined value created by the merging of two companies doesn't outweigh the cost, then the merger is commonly considered a failure. Vielba and Vielba (2006) state, "the most important contributor to whether or not an M&A is ultimately considered to be a success is the cost-price equation" (p. 43). Greengard (1999) points out that "studies have found that a staggering 50 to 75 percent of all merging companies fail to retain their book value two years after stepping to the altar" (p. 69). Weber, Shenkar, and Ravek (1996) also note "many M&As have not lived up to expectations" (p. 1215). The problem is summarized by Garrie and Griver (2009) as follows: "while the ostensible goal of an M&A deal is to create a whole greater than the sum of its parts, the reality is that the parts are often greater than the whole" (p. 26).

The potential cost of integrating the information technology division (IT) and IT systems during an M&A can be significant and is often uncertain. However, "it is not uncommon for IT to account for between 20 per cent and 30 per cent of the post-acquisition benefits in a merger"

(Vielba & Vielba, 2006, p. 3). During the M&A process, the amount of research into IT systems that can be conducted during due diligence is often limited because of short timelines and reservations about sharing vital details of the IT infrastructure. "Unlike an initial public offering, where nearly every rock is turned over, trust plays a big role in public company mergers" (Reingold & Barett, 2000). While trust is an important factor during an M&A, Stylinaou, Jeffries, and Robbins (1996) state "two-thirds of the companies involved in the merger/acquisition indicated that there was inadequate information to make information generated decisions concerning IS issues" (p. 209).

Purpose

This study is designed as an annotated bibliography. The purpose is to present selected literature that identifies and describes the potential central role played by the IT division as a core partner in M&A projects from the beginning of the process through the final integration of the two companies (Vielba & Vielba, 2006, p. 3). Specific areas of focus include: (a) key technology issues in an M&A project (Stylianou, Jeffries, & Robbins, 1996); (b) assessing the value contributed by the IT division during an M&A (Sethi & King, 1994); and (c) early involvement of the IT division in M&A to reduce cost and risk (Garrie & Griver, 2009). The goal is to increase awareness of the role that the IT division can play in improving the likelihood of success of an M&A and the opportunities that IT can create, such as reduced risk for the business and more accurate IT cost estimates (Vielba & Vielba, 2006). The underlying assumption is that the addition of the IT division to the core team throughout the initial stages of an M&A project (i.e., (a) due diligence, (b) deal sign, and (c) integration) would add value and decrease the risk to any merger or acquisition project (Mata, Fuerst, & Barney, 1995).

The central research question is: How can early integration of the IT division add value to the merger and acquisition process in relation to (a) risk and (b) cost? Sub-questions include:

- How can the role of the IT division during an M&A be assessed to show contributed value?
- How can the role of the IT division during an M&A reduce risk to help maximize business value of a merger or acquisition?
- How can the early involvement of the IT division reduce the overall cost of a merger or acquisition?

Audience

The audience for this annotated bibliography is the core members of the M&A deal-making team within the acquiring or "lead" company. This team typically includes representatives from across the enterprise who are responsible for leading M&A projects, including finance, capital, supply chain, research and development, sales and marketing, human relations, and IT. This audience is selected because within an M&A, "decisions tend to be dominated by financial and business managers" (James, Georghiou, & Metcalfe, 1998, p. 563). Even with the rising importance of IT within the company, "managing the deal is typically seen as the province of investment bankers, consultants, corporate lawyers, and accountants" (Tetenbaum, 2003, p. 26). As recently as 2006, Wijnhoven, Spil, Stegwee, and Fa point out that strategic and organizational compatibility are still the primary focus, with IT issues being prioritized to be addressed later in the process.

Significance

Companies have many reasons for merging with or acquiring other companies. Battey (2000) points out**,** "whatever the reason for a company's M&A campaign – be it to obtain new technologies and products, extend the customer base, or grow a web audience, IT leaders need to be involved in the identification of targets and the numbers behind the deal" (p. 73). The early technology decisions "may have far reaching consequences for future strategy and may directly affect the competitive position of the acquired business and its new parent" (James, Georghiou, & Metcalfe, 1998, p. 565).

As noted by Vielba and Vielba (2006), the role of the IT division within the business continues to grow as IT becomes more embedded in the business. In 1996, Stylianou, Jeffries and Robbins noted that the IT area was often treated as a "second class citizen" in merger and acquisition activities. As IT matures, it "plays a more pervasive and significant role in business processes now than it did two decades ago" (Vielba & Vielba, 2006, p. 4). For many companies "effective management of technology in mergers and acquisitions can influence acquisition success or failure and the impact of acquisition on the innovative capabilities of the firm" (James, Georghiou, & Metcalfe, 1998, p. 565). As a result, the role of IT in the M&A process is becoming more critical, moving from a purely support role to a more strategic role (Vielba & Vielba, 2006, p. 15).

Delimitations

Time frame. Hundreds of studies have been conducted on M&As in general (Garrie & Griver, 2009). However, even though there is extensive literature on M&As, the writing that focuses on the potential role of IT in M&As is limited (Vielba & Vielba, 2006, p. 4). As a result,

pertinent literature is selected from a broad time range: the earliest reference in this study was published in 1986; the latest is published in 2011.

Search engines. The sources selected in writing this paper are located using three primary search engines. The first is the University of Oregon online library, the second is Google Scholar, and the third is Science Direct. These three search engines are selected because they contain the highest quality of academic articles.

Selection criteria. Within this annotated bibliography, three types of sources are utilized: 1) peer-reviewed journals, 2) books, and 3) trade magazine articles. The preferred source of literature comes from peer-reviewed journals because the articles are critically reviewed by experts in the field prior to publication (Hewitt, 2002, p. 5). Lester and Lester (2010) state the following in support of peer-reviewed journal articles:

> With a journal article, you may feel confident in its authenticity because the authors of journal articles write for academic honor, they document all sources, and they publish through university presses and academic organizations that use a jury to judge an article before its publication. (p. 111)

The second source selected for this bibliography is books. Hewitt (2002) notes that "textbooks generally provide comprehensive overviews of a particular subject. In doing so they may refer to, sometimes extensively, the research literature found in journal articles, reports, conference proceedings or theses" (p. 6). Books selected for this literature review contain numerous references to other peer-reviewed journals and documents.

Magazine articles are also used to help define terms or help present the problem. Magazine articles require caution since they are not typically peer reviewed. Lester and Lester (2010) point

out that "some magazines target an intellectual audience and thereby have a superior quality with academic merit" (p. 113). The magazine articles selected are from industry magazines with a specific focus on M&A, technology, or business.

Excluded topics. This annotated bibliography is focused on the role of the IT division during a merger or acquisition until the integration of the new company into the parent company is complete. This includes (a) due diligence, (b) deal sign, and (c) post-merger planning and integration. This paper does not focus on long term aspects of how IT would be of benefit during day-to-day operations after the M&A integration is complete.

Reading and Organization Plan Preview

Once a potential set of references is collected for this study, they are reviewed in relation to a set of criteria. According to Hewitt (2002), before considering a detailed analysis of each article, it is worth previewing the abstract, the introduction, headings and subheadings, tables and figures, discussion and conclusions, and the reference list (p. 22). The information gathered at each step gives guidance as to whether further reading is required:

- Abstract – Does the abstract indicate the article has relevance to the bibliography?
- Introduction – Does the introduction give a clear indication of the problem?
- Headings and Subheadings – Are the headings and subheadings properly labeled and do they show a thought process throughout the paper?
- Tables and Figures – Do the tables and figures visually help the reader understand the discussion?
- Discussion and conclusion – Do the discussion and conclusion support the purpose of your paper?
- Reference List – Does the reference list contain peer-reviewed scholarly works?

If an article passes the relevant criteria listed above, it is read in full. Highlighted quotes from journals, books, and magazines are then transferred into separate word documents based on research question or the area of the paper to which it relates. Quotes are categorized in three content areas: (a) value of IT, (b) risk, and (c) early integration of IT in M&A. Utilization of this same categorization scheme provides a way to organize and present information in the annotated bibliography.

Definitions

According to Wikipedia (2011), "technical terminology is the specialized vocabulary of any field, not just technical fields. Within one or more fields, these terms have one or more specific meanings that are not necessarily the same as those in common use" (para. 1). Like many fields, M&A has its own vocabulary. Common terms such as *risk* have a specific meaning, while other terms like *M&A* have multiple overlapping meanings. The specific usage of these words is defined in this section of the annotated bibliography to increase the reader's comprehension.

Acquisition: An acquisition is defined as an act of exchange by which a company, called here a "bidder company", uses money, stocks, or their combination to acquire some assets of the target company (Giacomazzi, Panella, Pernici, & Sansoni, 1997).

CAPITA: The term is an acronym meaning Competitive Advantage Provided by an Information Technology Application. The first step in a program of substantive and methodological research on the strategic performance impacts of IT (Sethi & King, 1994).

Due Diligence: The term applies to the investigation and evaluation performed by the acquiring company into the company being acquired. From an IT perspective, the focus of the due diligence phase should be to gain an understanding as quickly as possible about the state of the target company's IT systems infrastructure (Vielba & Vielba, 2006, p. 116).

Information Systems: A combination of hardware, software, infrastructure, and trained personnel organized to facilitate planning, control, coordination, and decision-making in an organization (Business Dictionary, n.d.).

Information Technology: The common term for the entire spectrum of technologies for information processing, including software, hardware, communications technologies, and related services. In general, IT does not include embedded technologies that do not generate data for enterprise use (Gartner, 2011).

Willcocks and Lester (1997) point out that "Information Technology (IT) refers to hardware, software and related technical routines, and information systems (IS) to organizational applications, increasingly IT-based, that deliver on the information needs of an organization's stakeholders. Note, however, that some sources referred to in this paper use 'IT' to mean both IT and IS" (Willcocks & Lester, 1997, p. 1082).

Integration Manager: Project manager in charge of the integration with a broad view of the enterprise and good people skills. This is the person who will make or break the integration, oversee its decision-making process, the achievement of milestones and deliverables, and the quality of the reporting process (Galpin & Herndon, 2007, p. 251).

Mergers: Mergers are different than acquisitions because they always realize a combination between two or more companies by crossing their stocks, and thus concentrate all the components of the companies involved in the operation of only one company (Giacomazzi, Panella, Pernici, & Sansoni, 1997).

Mergers and Acquisitions: The phrase "mergers and acquisitions" (M&A) refers to the aspect of corporate strategy, corporate finance, and management dealing with buying, selling, and combining of different companies that can aid, finance, or help a growing company in a

given industry grow rapidly without having to create another business entity (Wikipedia, 2011).

Projects: Complex undertakings involving a unique set of tasks and activities conducted within a set of constraints to meet defined objectives (Hillson, Grimaldi, & Rafele, 2006, p. 61).

Project Management: The application of knowledge, skills, tools, and techniques to project activities to meet project requirements. Project management is accomplished through the application and integration of the project management processes of initiating, planning, executing, monitoring and controlling, and closing (Project Management Institute, 2004, p. 8).

Risk: The exposure to the probability that an event with adverse consequences might occur (Ben-David & Raz, 2001, p. 14).

Risk Reduction: Used to describe any change to one or more of the project work elements that, if implemented, will affect either the probability or the impact of one or more of the risks that the project is exposed to (Ben-David & Raz, 2001, p. 16).

Synergy: Each company must interpret the term *synergy* for itself, but most use it to designate some measurable reduction in costs, increase in revenues, or avoidance of capital outlay that comes as the direct result of the combination of two operations into one company and that would not have been realized had the companies remained separate (Galpin & Herndon, 2007, p. 196).

Research Parameters

Creswell (2009) states, "research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis" (p. 3). Due to the vast amount of research literature available on M&A, IT, cost savings, and risk reduction, criteria must be applied to narrow and focus the research to locate the most relevant data. This section of the paper describes the procedures used to conduct research for this annotated bibliography.

Search report. The selection of references to support this study focuses on three areas of literature: (a) key technology problems that arise in a typical M&A project; (b) assessing the value contributed by the IT division during an M&A; and (c) early involvement of the IT division in an M&A to reduce cost and risk.

Literature is organized into categories related to each of these content areas as a way to address relevant research questions. The types of materials searched include: peer-reviewed articles and journals, books, and trade magazine articles. Preference when selecting references is given in this order to: 1) peer-reviewed documents, such as journals, 2) books, and 3) industry magazine articles.

Key words. Key words are identified by using several key word search tools available on the internet, including Wordtracker and Keyword Discovery. The initial key words are: mergers, acquisitions, risk, competitive advantage, project management, and strategies. Using both the

University of Oregon Library Articles, Databases, Indexes and Google Scholar, the following terms are used to conduct searches for relevant material:

- mergers acquisitions information technology
- mergers acquisitions information systems
- merger acquisitions risk
- mergers acquisitions strategies
- information technology project management
- project management risk reduction
- information technology competitive advantage
- due diligence mergers acquisitions
- IT competitive advantage

Various combinations of the words and acronyms are also used to find additional matches, for example: M&A IT, or M&A information technology, etc. Additional key words are identified from the abstracts of identified relevant literature.

Search results. Searches are conducted using "mergers and acquisitions" along with other terms to narrow the focus to the three specific topic areas. Additional searches focus on the competitive advantage IT can provide to the business (Mata, Fuerst, & Barney, 1995), and the use of project management to reduce risk in the M&A process (Vielba & Vielba, 2006, p. 3).

Documentation approach. As materials are located, the PDF file or html is saved into a directory with a name that matches the search criteria. For example, all articles located using the search term "mergers acquisitions information technology" are placed into a directory of the

same name. A word document within this directory contains the bibliographic entry for each document. The entries in this file include:

1) The reference information, including author, publisher, and document priority type such as journal, book, or magazine article.
2) The abstract, if provided by the author or journal.
3) The persistent URL to electronic sources to aid in reader location of the documents.

Selected references are coded during a detailed reading process using methods described by Creswell (2009) and Busch, De Maret, Flynn, Kellum, Le, Meyers, Saunders, White, and Palmquist (2005). Topics are abbreviated and codes are written next to the appropriate segments of text. As the codes develop, additional terms and concepts may emerge.

Evaluation criteria. Collected literature is evaluated for relevancy and credibility using the framework documented on the University of Oregon Libraries web site. The areas to consider include: 1) authority of the author, 2) objectivity of the author, 3) quality of the work, 4) coverage of the work, 5) currency, and 6) relevance (Bell & Smith, 2009).

- Authority – In reviewing for authority, look for: 1) who is the author; 2) what are his/her credentials; 3) what is the author's reputation among his/her peers; 4) who is the publisher; and 5) does the author belong to reputable institutions or organizations (Bell & Smith, 2009)?
- Objectivity – When evaluating objectivity, ask: 1) what are the stated goals; 2) does the author exhibit bias; 3) is the author's affiliation apparent in the message; and 4) does the information appear to be valid and well-researched (Bell & Smith, 2009)?

- Quality – When assessing quality, check to see if: 1) is the information well organized; 2) does the author use proper grammar; 3) are graphics and charts clear; 4) is the information complete and accurate (Bell & Smith, 2009)?
- Coverage – When evaluating coverage, check: 1) does this work update other sources; 2) does it substantiate other materials or add new material; 3) does this work fully support your arguments (Bell & Smith, 2009)?
- Currency – Check to see if: 1) when was it published; 2) does your topic require current information; 3) has the source been revised, updated, or expanded (Bell & Smith, 2009)?
- Relevance – In reviewing for relevance, ask: 1) does the work address your question; 2) is the content appropriate for your topic (Bell & Smith, 2009).

Reading and Organization Plan

Reading. Once the selected literature is critiqued for relevance, it is read in detail. While reading, attention is paid to sections of text that support the three main research topic areas: (a) the value of IT, (b) risk, and (c) early involvement of IT in M&A.

The reading process, known as coding, is defined by Rossman and Rallis (as cited in Creswell, 2009) as "the process of organizing the material into chunks or segments of text before bringing meaning to information" (p. 186). As key words or search terms are located that support the three research questions, exact quotes are transferred into Microsoft Word documents that align with the research questions. The surrounding areas of text are also reviewed to identify additional sub-questions that may contribute to the larger questions.

The coding process is operationalized using a modified version of the process described by Busch et al. (2005) concerning conceptual analysis. The first step involves deciding how many concepts to code for. The literature is coded using an interactive concept choice. There are three

initial concepts corresponding to the three research questions in the reading plan. A level of flexibility is allowed for the identification of related new terms discovered during the analysis. In the second step, coding is conducted on the identified words and concepts. The identified text is re-read thoroughly to evaluate relevancy to the research questions.

Organization. Once the selected literature is read, the next step is organizing and presenting the information and concepts. Results of the coding process described above are organized in relation to the three main research areas and related research questions, noted in the Reading Plan. The goal is to present the information in a way that helps those involved with M&A deals understand the importance of IT involvement in order to reduce cost and risk as well as maximizing the potential value to be contributed by the IT division.

The value of IT. Literature supporting the value of IT is collected to demonstrate how IT can provide business value to the company. Sub-questions for this topic include:

a) In what ways does IT create business value?

b) How can the value of IT be demonstrated to the business?

c) How can IT add business value during M&A?

This literature helps the selected audience understand the often unseen value of IT during the M&A process and how that can be maximized to achieve higher returns of investment during the deal.

IT risk reduction. Literature supporting risk reduction within IT projects is collected to demonstrate how IT is equipped to manage risk within an M&A deal. The literature addresses the following sub-questions as well:

d) How does IT reduce risks in IT projects?

e) How can risk reduction increase the likelihood of successful projects?

f) How does IT reduce risk to an M&A project?

The literature educates the selected audience on IT's history with project management risk reduction techniques and how IT can be leveraged to reduce risk during an M&A project by utilizing these skills.

Reduced cost through early IT involvement. Literature is collected supporting the question how the early involvement of IT can reduce the overall M&A deal cost. The following sub-questions are addressed:

a) How can the involvement of IT reduce cost in an M&A?

b) At which M&A step should IT begin involvement?

c) How do cost savings from IT affect the overall budget?

The selected literature helps the selected audience understand the importance of including IT in all steps of M&A to ensure accurate cost estimates and reduce the overall costs by properly determining the amount of work required to integrate complicated IT systems.

Annotated Bibliography

This annotated bibliography presents a selection of 30 references that examine the value of IT in M&A. As indicated by Lester and Lester (2010):

> An annotation is a summary of the contents of a book or article. A bibliography is a list of sources on a selected topic. Thus, an annotated bibliography does two important things: (1) it gives a bibliographic list of a selection of sources, and (2) it summarizes the contents of each book or article. (p. 122)

Each annotation in this bibliography consists of three elements: (a) an excerpt from the published abstract, (b) an assessment of the credibility of the reference, and (c) a summary of the content relevant to this study. Ideas presented in the summaries are paraphrased and/or quoted directly from the references.

The annotated bibliography is divided into three sections that correspond to the three sub-questions framed for this study, which include: (a) early involvement of the IT division in merger and acquisition projects; (b) potential value added by the IT division during a merger and acquisition project, and (c) the potential role of the IT division in reducing risk in the merger and acquisition project.

Early Involvement of the IT Division in M&A Projects

Garrie, D. B., & Griver, Y. M. (2009). Digital issues in mergers & acquisitions, e-discovery, & information technology systems. *Widener Law Journal, 19*(1), 25-56. Retrieved April 10, 2011, from http://onesearch.uoregon.edu/?base=databases&action=proxy&database=ORG00103&url=http%3A%2F%2Fcontent.epnet.com%2FContentServer.asp%3FT%3DP%26P%3DAN%26K%3D47884857%26EbscoContent%3DdGJyMNHX8kSeprU4y9f3OLCmr0mep7ZSsK64SK6WxWXS%26ContentCustomer%3DdGJyMPGuslGwrbVNuePfgeyx%252BEu3q64A%26D%3Daph

Abstract. The article discusses the importance of data due diligence in merger and acquisition (M&A) transactions, litigation risks arising from electronically stored information, and legacy data storage systems. The article addresses the specific problem of spoliation with the litigation risk and many of the issues created by the ubiquitous use of websites to transact business. The importance of good data due diligence in furthering M&A success is highlighted.

Summary. One of the biggest issues in M&A is the propensity for failure. Theory says M&As should be successful due to economies of scale or technical efficiencies. Instead of creating successes, 50-80% of M&A projects result in financial losses.

Due diligence during an M&A is vital to success. However, important topics such as electronic discovery and cyber security are often ignored during due diligence. The merging companies must be prepared to preserve electronic data for regulators and shareholders after a deal is complete. Companies must also ensure the privacy of the records being transferred and to protect intellectual property. Ensuring cyber security on the acquired data will lower the risk of potential future liabilities.

Storing electronic records can be expensive. Companies that fail to identify and plan for this expense could see a financial burden when moving to the operational stage. Often, keeping records requires keeping old hardware online or purchasing new hardware and converting old records to new formats. This additional expense could potentially erode some of the financial value of the deal.

Companies that address e-discovery and technology issues during due diligence are likely to reduce the risk of financial loss. With proper planning and system reduction, the size of IT systems can be reduced without incurring additional risk.

Credibility. The article is published in the peer-reviewed Widener Law Journal, which "focuses on a wide range of topics including constitutional law, civil and criminal law, professional ethics, administrative law, commercial law, and other cutting-edge developments in the law" (Widener Law, 2011, para 3). The authors, Garrie and Griver, are both practicing attorneys at law. Daniel B. Garrie, Esq., is the managing Member (cofounder) of EMI Capital, LLC and specializes in electronic discovery issues. Yoav M. Griver is a partner in the ZEKlaw firm's litigation group where he specializes in commercial and intellectual property issues.

Greengard, S. (1999). Due diligence: The devil in the details. *Workforce, 78* (10), 68-72. Retrieved April 3, 2011, from http://web.ebscohost.com/ehost/detail?sid=03bbea86-9a4a-436c-af03-5f10647317ef%40sessionmgr113&vid=2&hid=105&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#db=aph&AN=2396873

Abstract. Discusses the role of human resources in the due diligence process during mergers and acquisitions. Topics include (a) the importance of identifying personnel critical to the transaction; (b) financial and legal side of the transaction; (c) cultural clash during mergers; and (d) examples of due diligence process in several M&As.

Summary. *Merger Mania* has swept the corporate world. While the attorneys and business teams are scrutinizing details and poring over spreadsheets, other teams are focusing on relevant due diligence. "The more you know, the better you can structure the deal" (p. 69). Even amongst those companies involved in M&A that take due diligence seriously, many do not involve all the necessary teams. One of the biggest problems is getting top management resource professionals to plan ahead and provide strategic input. It is best to have a deal checklist ready at the outset and know who will handle the specific tasks as soon as the announcement is made. One of the companies interviewed for the article had a 30-plus page checklist ready and a team prepared to begin examining the deal. Another interviewee states "the idea is to understand exactly what you are buying. It's rare to spot something that kills the deal, but it isn't uncommon to uncover some information that leads to a re-valuation of the deal" (p. 70). Often due diligence will expose issues allowing the company to avoid serious problems.

Credibility. The article is published in Workforce magazine, which examines HR trends and tools. Samuel Greengard has been a professional writer since 1981 and a contributing editor for Workforce. His work appears in materials for Charles Schwab & Co., Cisco Systems, Honda, IBM, Intel, Korn/Ferry, Microsoft, Oracle and Sun Microsystems. He has appeared on numerous radio and television programs, including shows on KABC radio in Los Angeles and Fox Television. Greengard has received numerous writing awards, including a Maggie in 1997 for best article in a trade magazine.

James, A. D., Georghiou, L., & Melcalfe, J. S. (1998). Integrating technology into merger and acquisition decision making. *Technovation*, 563-573. Retrieved April 11, 2011, from http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6V8B-3TT0XBT-8-1&_cdi=5866&_user=2148430&_pii=S0166497298000297&_origin=gateway&_coverDate=09%2F30%2F1998&_sk=999819991&view=c&wchp=dGLzVtz-zSkWA&md5=550bd6a76c283877d579be76b20ddf1e&ie=/sdarticle.pdf

Abstract. Merger and acquisition (M&A) decisions tend to be dominated by financial and business managers. However, given the growing importance of technology and innovation to firm competitiveness and the on-going importance of merger, acquisition, and divestment activity, there are potential gains to be made by acquirers from better integrating technology issues into their M&A decision-making.

Summary. Based on a three year study of M&As involving some of the UK's leading companies, this article considers some of the technology issues that are likely to arise in the M&A process. Technology evaluation is problematic and the tools to evaluate IT are often of poor quality, making assessments early in an M&A difficult. Even with these challenges, there are potential gains to be made from having earlier involvement of IT during the due diligence phase such as avoiding costly errors, reducing failures, and better realization of value from the acquired technology assets.

Andrew et al. see the technology management in an M&A as an aspect of a capability in acquisition management. Even if the motive of an acquisition is not for technology, management of IT and technology assets during and after an M&A is often a major task. Technology issues have far reaching consequences for future strategy and may affect the competitive position of the

parent and acquired company. The fact that technology is rarely the motive for acquisitions explains why it is often overlooked in the decision-making process.

The article concludes by identifying four ways in which managers might better integrate technology issues into M&A decision-making. Poorly managed due diligence can lead to badly priced deals and poorly conceived post-integration plans. Assessing an accurate evaluation is difficult since the acquiring company often has little access to the acquisition target. Evaluating items such as physical assets is more easily accomplished than the evaluation of the IT team's skills and knowledge.

Credibility. James is a Research Fellow at policy research in engineering, science and technology (PREST) at the University of Manchester with interests in technology management in M&As, technology strategy and innovation processes in the firm and technology management and policy in the defense industry. Georghiou is Professor of Science and Technology Policy and Management at the University of Manchester and Executive Director of PREST with interests in innovation management and policy, evaluation of R&D, technology foresight and science policy. Metcalfe is Stanley Jevons Professor of Political Economy and Cobden Lecturer at the University of Manchester, Executive Director of the ESRC Centre for Research on Innovation and Competition (CRIC), Manchester and a Director of PREST with interests in evolutionary economics, history of science and technology and science and technology policy.

Reingold, J., & Barett, A. (2000). M&A frenzy may be scuttling due diligence. *Business Week* (3591), 1. Retrieved April 3, 2011, from http://web.ebscohost.com/ehost/detail?sid=974d5aea-74e3-4443-b529-85bf94c5e015%40sessionmgr112&vid=1&hid=105&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#db=aph&AN=934787

Abstract. Reports that companies in the late 1990s are less than diligent when investigating the finances of potential mergers. Topics include (a) the fast pace of mergers in 1998 and the ability of companies to fully investigate the finances of their proposed partners; (b) number of M&As as of August 17, 1998; (c) the lack of an agreed upon standard for due financial diligence and where diligence starts; and (d) how the so-called mergers of equals has exacerbated financial problems.

Summary. Investors are beginning to wonder if the frenzied race to complete M&A deals has left proper due diligence in its wake. As the rate of M&A deals increase, it is likely that something will be missed during due diligence. Even when things go well, not every detail is revealed during due diligence. When deals are created with inflated prices, it is the investors who pay the price when the deal goes south. In 1996, 6,300 deals were announced totaling $1.1 trillion dollars. Billion dollar megadeals were being put together in weeks. As a result, the pressure to complete due diligence quickly is high.

Even though investors suffer when a deal is unsuccessful, there is no formal definition of due diligence. It isn't possible for a financial analysis to comb over every detail in a ledger. Unlike an initial public offering where every stone is over turned, an M&A deal involves a lot of trust. This means due diligence starts with the assumption that the financial records are correct.

A recent trend in M&A is to use stock to purchase another company. Investors rush in while the stock prices are supercharged. However, when stock is used for the purchase, deal makers are often less careful than when compared to deals where cash is used for the purchase.

Credibility. The article is published in News Week which is an "American weekly news magazine. It is the second-largest news weekly magazine in the U.S., having trailed *Time* in circulation and advertising revenue for most of its existence" (Wikipedia, 2011). Reingold is a Fast Company writer. Previously, Reingold was the Management Editor of Business Week. Barrett is a writer who covers entrepreneurship and finance for a number of outlets including Inc. magazine. Barrett is a seventeen year veteran of Business Week, who spent time in the magazine's Los Angeles and Washington D.C. bureaus before becoming Philadelphia Bureau Chief in 1997.

Stylianou, A. C., Jeffries, C. J., & Robbins, S. S. (1996). Corporate mergers and the problems of IS integration. *Information & Management*, 203-213. Retrieved April 4, 2011, from http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6VD0-3VV044S-D-1&_cdi=5968&_user=2148430&_pii=S0378720696010828&_origin=gateway&_coverDate=12%2F15%2F1996&_sk=999689995&view=c&wchp=dGLzVtb-zSkzV&md5=ee3f9fec23aaf7d7e938ec58dfedcf8d&ie=/sdarticle.pdf

Abstract. The process of integrating information systems (IS) during corporate mergers can be critical to their success. Factors that can support or impede the successful integration of IS include: organizational and IS attributes, organizational merger management, and IS integration activities. This study develops a conceptual framework for measuring IS integration success and identifies the factors influencing it.

Summary. With little warning, the IT division is expected to resolve IS integration issues following an M&A deal so the flow of information is minimally interrupted. Although corporations depend heavily on the IT/IS systems, IT is often ignored during the planning process which makes post-acquisition integration difficult. Technology incompatibles and connectivity issues are expected to be resolved quickly after the deal is complete. Management often has unrealistic goals for integration costs and timelines.

The research model defined in this paper uses four variables to predict the success of an M&A: (a) IS-assessment of the success of the integration process and integrated systems; (b) the ability to exploit opportunities arising from the merger; (c) the ability to avoid problems stemming from the merger; and (d) the end-user satisfaction with the integration process and integrated systems. An important aspect of integrating systems relates to the degree of

compatibility between the various system components. Most companies reported experiences of major incompatibilities with file/database architectures, applications, and hardware. Difficulty in integrating IS/IT systems can lead to lost cost savings potential.

Organization merger management factors seem to play an important role in successful IT integration. Having a thorough integration plan is a major contributor to the success of the integration and thus the ability to exploit synergy opportunities in the IT arena. IT integration planning is more successful when representatives from the IT department are involved in pre-merger planning and due diligence. According to the results of this field survey of CIOs, prior merger experience, IS participation in merger planning, the quality of merger planning, the criteria used for setting IS integration priorities, and a high level of data sharing across applications appear to have a positive influence on the success of the IS integration.

Credibility. This article is published in a peer-reviewed journal. Dr. Antonis C. Stylianou is associate professor of Management Information Systems at the University of North Carolina at Charlotte. He holds an MBA and a Ph.D. from Kent State University. Dr. Carol J. Jeffries is associate professor of Computer Information Systems in the School of Business and Public Administration at Our Lady of the Lake University in San Antonio, TX. Stephanie S. Robbins, PhD, is an Associate Professor of Management Information Systems and Operations Management at the University of North Carolina at Charlotte. Dr. Robbins holds a BA degree from Emerson College and received a PhD from the University of Alabama and a second PhD from Louisiana State University.

Vielba, F., & Vielba, C. (2006). *Reducing the M&A risks: The role of IT in mergers and acquisitions.* New York: Palgrave MacMillan.

Abstract. The lack of adequate and timely IT involvement in the merger and acquisition process costs companies millions of dollars every year. Current research shows that IT accounts for 20-30% of the post-acquisition benefits in a merger or acquisition, and it is growing. Topics include: (a) how to merge with successful use of IT; (b) how to avoid M&A failure and additional risks in an IT M&A project; and (c) what to do about IT when contemplating a merger or acquisition.

Summary. The logic behind an M&A is the idea of the creation of greater value by combined operations than could be achieved from the two companies individually. Anything that threatens the creation of this value would be regarded as a risk. Since IT accounts for a significant portion of the synergies in an M&A, it would be identified as a high-risk area. The ability for IT to deliver synergy is central to the success of many M&A deals. Reducing that risk is therefore essential to the overall success of the transaction.

The book identifies three main ways in which IT risk can be reduced: (a) the IT function needs to be involved in the M&A transaction from the beginning to end; (b) the CIO should have a well-defined IT strategy in place that covers systems, infrastructure, processes, and people that is aligned with the business strategy; and (c) the integration team must possess the skills and experience from working in an M&A environment to handle the overall integration project effectively. These three factors illustrate that reducing the risk associated with an M&A is as much a factor of preparation as of execution.

Credibility. Frank Vielba is managing director of VICL, an international consulting firm. He has held senior management positions in world-class companies, including: KPMG, Emerson Electric, ICI, Schlumberger, and Coca-Cola. He is an independent consultant and works with multinational companies in the area of systems integration in M&A. Carol Vielba is associate dean for Academic Quality and Standards at Cass Business School, City University, UK. She holds research degrees in sociology and government and has held academic posts in New York, Birmingham, and London. She is active in the field of business and management education evaluation and accreditation.

Potential Value Added By the Information Technology Division During a Merger and Acquisition Project

Alaranta, M., & Henningsson, S. (2008). An approach to analyzing and planning post-merger IS integration: Insights from two field studies. *Information Systems Frontiers, 10*(3), 307-319. Retrieved April 4, 2011, from http://www.metapress.com/content/18p373lv270q3m10/fulltext.pdf

Abstract. Information systems (IS) integration is among the most challenging tasks in corporate M&As. In this paper we propose and illustrate the use of an approach to analyzing and planning post-merger IS integration that extends general theory for IS planning, considering the specific characteristics of the M&A context. We highlight that planning effectiveness is possible to achieve in fundamentally different ways, dependent on the characteristics of the merger or acquisition at hand.

Summary. This reference focuses on how companies can analyze and plan post-merger IT integration planning. Because of the dependency of IT on the business, a merger or acquisition is unlikely to be successful if the IS planning is inappropriate or poorly aligned with the strategic business goals. The number of companies involved in M&As that are trying to maximize the potential synergy continues to grow. An M&A deal is multifaceted and touches many organizations, process, people, cultures, as well as IT.

A Price Waterhouse Coopers' study concludes that IT integration is the most difficult part of a post-deal integration. Less than 1/3 of those surveyed reported that their last IT integration was a success. The ability to be successful during integration is not a matter of attaining an integrated IT, but rather the ability to support the new business requirements. The IT

management has a responsibility to focus resources on areas that provide business and IT synergy.

The post-merger IT integration plans include: (a) creation of the strategic IS plan, (b) creation of the execution plan, and (c) the execution of the plan. The design of the plan not only includes the strategy, but also the execution required to complete the integration. Effective post-merger IT integration can be achieved many different ways. Each integration plan must be adjusted to match the business requirements of the deal. There is no single best planning method; rather success is a matter of the resources, time spent on the project, and how well the IT migration matches the business needs.

Credibility. Information Systems Frontiers is a peer-reviewed journal with a focus on research and development at the IS/IT interfaces in the academia and industry. Dr. Maria Alaranta is senior researcher, teaching researcher, and program manager at the Enterprise Simulation Laboratory with current research interests in the integration of information systems after a merger and switching IT outsourcing partners. Since September 2004, Stefan Henningsson has held a full-time scholarship provided by Trelleborg AB, in cooperation with Lund Institute for Economic Research, to study managerial aspects of information systems integration. His doctoral thesis work is based on a collaborative research project where Lund University and the Swedish industry group Trelleborg AB focus on the managerial aspects of information systems integration in corporate M&As.

Ashkenas, R. N., & Francis, S. C. (2000). Integration managers: Special leaders for special times. *Harvard Business Review, 78*(6). Retrieved May 1, 2011, from, http://web.ebscohost.com/ehost/detail?sid=a79f7688-c1a5-4332-ab2e-32bfcfdd4957%40sessionmgr111&vid=1&hid=106&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#db=bth&AN=3712757

Abstract. Although the integration of an acquired company with the parent organization is a delicate and complicated process, traditionally no one has ever been responsible for that process, to chart how the two companies will combine their operations, for seeing to it that the integration project meets its deadlines and performance targets, and for educating the new people about the parent company and vice versa. Some enlightened companies have recognized this gap and have appointed a guide – the integration manager – to shepherd everyone through the rocky territory that two organizations must cross before they can function effectively together.

Summary. The due-diligence team develops a deep knowledge of the acquired company; but that team is usually disbanded once the deal is complete. A different management team is then responsible for integrating the two companies, which leaves a gap in accountability. As a result, some companies now appoint an integration manager to jump into a new situation, bridge gaps between different companies and operational units, and deal with cultural differences. Integrations managers must have traditional organizational skills, such as project management, and in-depth knowledge of the company, and organizational influence. Ashkenas et al. found that integration managers help the process in four principal ways: they speed it up, create a structure for it, forge social connections between the two organizations, and help engineer short-term successes that produce business results.

Putting two companies together requires disconnecting and reconnecting hundreds of processes and procedures as quickly as possible. One of the most effective ways an integration manager guides the process is by creating the structure within which the team can operate effectively.

The people involved in M&As are often strangers, thrown together in a joint enterprise, sometimes against their will. Besides keeping the day-to-day business going, employees at both companies need to build a new relationship, which often involves bridging language and cultural gaps. The integration manager can clear paths between the two cultures by facilitating the social connections between people on both sides.

Credibility. This article is published in the peer-reviewed Harvard Business Review. Ronald N. Ashkenas and Suzanne C. Francis are managing partners at Robert H. Schaffer & Associates, a management consulting firm based in Stamford, Connecticut. Together with Lawrence and DeMonaco, they are the authors of "Making the Deal Real: How GE Capital Integrates Acquisitions".

Bakos, J. Y., & Treacy, M. E. (1986). Information technology and corporate strategy: A research perspective. *MIS Quarterly, 10*(2), 107-119. Retrieved April 20, 2011, from http://www.jstor.org/stable/249029

Abstract. The use of IT as a competitive weapon has become a popular cliché; but there is still a marked lack of understanding of the issues that determine the influence of IT on a particular organization and the processes that will allow a smooth coordination of technology and corporate strategy. This article surveys the major efforts to arrive at a relevant framework, and attempts to integrate them in a more comprehensive viewpoint.

Summary. There is little disagreement about the strategic value of IT. However, there is a lack of testable models based on relevant theory. This article moves "toward the development of such normative models by distinguishing three levels at which IT impacts corporate strategy: the internal, competitive, and business portfolio levels" (p. 107).

Senior managers and IT executives are beginning to focus on the opportunities for IT to provide a competitive advantage. Underutilization of IT resources has been identified as a serious issue by IT managers. The mission of the IT group should be aligned with the mission of the business units it supports in order to maximize opportunities. Improving the effectiveness of the business unit is the traditional goal of IT. There are hundreds of papers identifying ways IT can help improve business processes. However, most of the papers fail to address the strategic goals of the business when identifying improvement opportunities.

The authors believe that a "general theory for studying the implications of IT for the internal strategy of the firm can be found within the organizational design literature. Such a general theory would provide a framework of models for generating specific, testable hypotheses" (p. 109). They identify four areas of opportunity to create competitive advantage: (a) improvement

of operational efficiency and functional effectiveness, (b) exploitation of interorganizational synergies, (c) product innovation with IT, and (d) acquisition of bargaining advantage over customers and suppliers.

Information managers work to create a competitive advantage through IT. Suggestions to improve IT effectiveness range from the development of better measures of efficiency and effectiveness of organizational functions, to major changes in the structure of the organization itself. This article draws attention to the need for IT to be appropriately measured to ensure maximum value.

Credibility. The article is published in the MIS Quarterly, which has an objective of "enhancement and communication of knowledge concerning the development of IT-based services, the management of IT resources, and the use, impact, and economics of IT with managerial, organizational, and societal implications" (MIS Quarterly, 2011). Yannis Bakos is an "Associate Professor of Management at the Leonard N. Stern School of Business at New York University where he conducts research and teaches graduate courses on the economic and business implications of information technology, the Internet, and online media" (Bakos Y. , 2007, para. 1). Michael Treacy is a former professor of management at the MIT Sloan School of Management, has published numerous articles over the past two decades in many popular magazines and journals, and is a frequent contributor to *Harvard Business Review* (Worldwide Speakers Group LLC, 2011).

Chanmugam, R., Shill, W., Mann, D., Ficery, K., & Pursche, B. (2005). The intelligent clean room: Ensuring value capture in mergers and acquisitions. *Journal of Business Strategy, 26*(3), 43-49. Retrieved May 7, 2011, from http://www.emeraldinsight.com/journals.htm?issn=0275-6668&volume=26&issue=3&articleid=1465141&show=pdf

Abstract. This article examines the importance of a speeded up merger integration process that creates maximum value by treating the transaction as a complete lifecycle – beginning with pre-deal strategy, progressing through deal execution and continuing with post-merger integration. Focus is on recent case studies, client work and a survey. Managers in the most successful transactions rely on four key principles: treat M&A as a holistic process; focus on value creation, not just integration; accelerate merger planning.

Summary. When Cingular and AT&T completed their merger in 2004, call centers staffed with thousands of representatives were waiting. Their IT systems had been merged and training programs were launched on day one. This was accomplished through exceptional integration planning and execution.

Many M&A teams treat pre-deal and post-deal process as separate projects. After deal-announce, the deal making team moves on to other projects while an integration team is brought in to complete the project. During this handoff, there is often a lack of accountability for financial goals and the integration team often has no idea what levels of synergy are required to make the deal successful. "A more successful, integrated approach treats the M&A transaction as a lifecycle – a single, connected and integrated process – that begins with pre-deal strategy

(goals, target identification, valuation), progresses through deal execution, and continues with post-merger integration" (p. 44).

The authors point out the goal of an M&A should be value creation, not just integrating the two companies together looking for synergy. In one case, a $1 billion dollar company (the acquiring company) was astounded to find the smaller company was sourcing components for 10 percent to 20 percent less producing huge savings. If one company's processes were dismantled just to complete integration, substantial savings and synergies could be lost.

Credibility. The article is published in the peer-reviewed Journal of Business strategy. Ravi Chanmugam is a New York-based partner in the Accenture Strategy/Mergers & Acquisitions group. With more than ten years' experience in M&A and management consulting, Mr. Chanmugam's work focuses on M&A strategy, divestitures, strategic due diligence and corporate strategy. Walt E. Shill is a Washington, DC-based partner in the Accenture Strategy/Organization & Change Strategy group with more than 15 years of experience across the spectrum of M&A deals and strategy consulting with Fortune 1,000 clients and large private equity firms. David Mann is the London-based lead partner for the Accenture Strategy/Products group in the UK. His work focuses on pre- and post-merger engagements across various industries and he also helps clients with operating-model and corporate strategy development. Kristin Ficery, an Atlanta-based associate partner in the Accenture Strategy/Mergers & Acquisitions group, and Bill Pursche, an external specialist in merger planning, contributed to the article.

Chatterjee, S. (2007). Why is synergy so difficult in mergers of related businesses. *Strategy & Leadership, 35*(22), 46-52. Retrieved May 7, 2011, from http://www.emeraldinsight.com/journals.htm?issn=1087-8572&volume=35&issue=2&articleid=1596530&show=pdf

Abstract. This article considers why M&As between companies that are considered to be in similar but different businesses are often surprisingly problematic. Typically the justification for such mergers or acquisitions is that, because the businesses are complementary, their union can lead to an increase in revenue (revenue synergy), efficiency (cost synergy) or both. The author interviewed the CEOs of successful acquiring firms and studied case accounts of unsuccessful mergers.

Summary. The typical reason behind an M&A is that the businesses are similar enough to gain substantial synergies if combined. In academic research, these are known as "related" mergers. Synergy flourishes when the combination of disparate parts within the new organization can lead to more revenues, more efficiency, or more of both than what the individual parts could muster as standalone units. However, it is difficult to gain such synergies by just adding technology or new talent. These synergies are usually achieved over many years through streamlining processes. There is research evidence showing the acquiring company often pays a premium due to perceived potential synergies. The seller often knows the true value better than the buyer even after due diligence.

Managers should expect mergers that are based on synergistic goals to be difficult and elusive. The author suggests following a checklist created by reviewing failed mergers to ensure success. These items include topics such as: (a) avoid high-pressure deals, (b) same industry mergers are less risky, (c) clarify the source of revenue increase, and so forth. Research shows

that acquiring firms that rely on a repeatable M&A process have the highest probability of success.

Credibility. Strategy & Leadership is a bi-monthly peer-reviewed journal. Sayan Chatterjee is a "Professor of Management Policy at the Weatherhead School of Management, Case Western Reserve University. Dr. Chatterjee is one of the leading scholars in the area strategic management, corporate diversification and mergers and acquisitions" (Weatherhead School of Management, 2011, para. 1).

Dewett, T., & Jones, G. R. (2001). The role of information technology in the organization: A review, model, and assessment. *Journal of Management, 27*(3), 313-346. Retrieved May 7, 2011, from http://jom.sagepub.com/content/27/3/313.full.pdf+html

Abstract. This paper provides a broad overview of how IT impacts organizational characteristics and outcomes. A review of the literature describes two principal performance enhancing benefits: information efficiencies and information synergies, and identifies five main organizational outcomes of the application of IT that embody these benefits. The role IT plays in moderating the relationship between organizational characteristics including structure, size, learning, culture, and interorganizational relationships and the most strategic outcomes, organizational efficiency and innovation is examined.

Summary. This paper builds on Huber's (1990) suggestion that IT is a variable that can be used to enhance the quality and timeliness of organizational intelligence and decision-making, thus promoting organizational performance. Information efficiencies are the cost and time savings that result when IT allows employees to perform their tasks at a higher level and assume additional responsibilities. Information synergies are the performance gains that result from IT enabling two or more individuals or groups to pool their resources and work together without organizational boundaries.

The most fundamental benefit of utilizing IT is the ability to link employees across organizations through IS systems as a way to achieve information efficiencies and information synergies. As compared to face-to-face communication, the use of electronic communication has been shown in the literature to increase the overall amount of communication in the organization. IT offers the business the ability to communicate more easily and quickly across time and

geographic locations using tools like email, fax, telephone, etc. It also allows employees to store and retrieve more rich business information. By reducing the transaction costs between corporate headquarters and sites, IT allows organizations to grow by being able to make more business decisions.

Credibility. The Journal of Management is "peer-reviewed and published bi-monthly, committed to publishing scholarly empirical and theoretical research articles that have a high impact on the management field as a whole" (Journal of Management, 2011, para. 1). Todd Dewitt is a tenured professor the Raj Soin College of Business at Wright State University and holds several graduae degrees in management and business. Gareth R. Jones is a professor of business at the May's Business school at Texas A&M.

Giacomazzi, F., Panella, C., Pernici, B., & Sansoni, M. (1997). Information systems integration in mergers and acquisitions: A normative model. *Information & Management, 32*(6), 289-302. Retrieved May 7, 2011, from http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6VD0-3SX27BX-3-1&_cdi=5968&_user=2148430&_pii=S0378720697000311&_origin=search&_coverDate=11%2F01%2F1997&_sk=999679993&view=c&wchp=dGLzVzz-zSkWb&md5=e9da21a55693944df71493f0c40b145c&ie=/sdarticle.pdf

Abstract. The role of information systems in M&As becomes increasingly important as the need for speed of reaction and information is growing. A model for IS integration in M&A is presented; this includes the categories and strategic objectives of external growth as well as consideration of the possible choices for the hardware and software configuration after completion of the M&A.

Summary. While much attention has been given to the growth of a company due to M&A, less attention has been focused on the IT or IS components of an M&A. In order to understand the success or failure of an M&A, it is necessary to understand what creates or destroys value. Information systems play a key in most companies' strategic plans. The increasing velocity of information diffusion creates, de facto, the emergence of global markets that rely on carefully orchestrated large-scale strategies. Competing in a global market creates a situation where margins and lead times are smaller, but business processes require more coordination and global sales strategies.

During a merger or acquisition, IS systems are integrated. Right after deal close, IT must manage the integration of the various systems. Challenges with IS system integrations can often

be remedied by capital investments in hardware or software. Integration can mean reducing to one system, or having two systems that communicate with each other. The result of this study is "an integration model that describes the criteria for choosing different strategies for IS integration after M&A; it defines the variables involved in the decision process and identifies the real drivers of change" (p. 297).

Credibility. This article is published in a peer-reviewed journal. Franco Giacomazzi is a Professor of Industrial Marketing in the Department of Economics and Production at the Politecnico di Milano. Carlo Panella is responsible for Marketing Research in DHL International. He received an MS (1995) degree of industrial and management engineering from Politecnico di Milano. Barbara Pernici is a full professor of Computer Science at Politecnico di Milano. Marco Sansoni received the degree of industrial and management engineering from Politecnico di Milano.

Johnson, K. D., & Yetton, P. W. (1996). Integrating information technology divisions in a bank merger fit, compatibility and models of change. *The Journal of Strategic Information Systems, 5*(3), 189-211. Retrieved May 7, 2011, from http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6VG3-465RV8W-13-1&_cdi=6027&_user=2148430&_pii=S0963868796800035&_origin=gateway&_coverDate=09%2F30%2F1996&_sk=999949996&view=c&wchp=dGLbVzW-zSkWA&md5=99b5925ddbf9522243fe47aa61924085&ie=/sdarticle.pdf

Abstract. Effectively integrating the IT divisions in mergers of large organizations can be critical to merger success. This paper analyzes a case study of IT integration in a merger of two large Australian banks, and argues that an understanding of organizational and strategic fit at the level of the IT organization can contribute to effective management of IT integration.

Summary. Effective integration of the IT organizations after a merger is important to the success of an M&A. The goal of this paper is to develop a framework to analyze the integration of technical, organizational, and strategic issues. To accomplish this task, the writers adapt the configurational view of fit from organization theory and apply it to IT. Johnson and Yetton (1996) state:

> Underlying the analysis of fit and compatibility in this paper are three key assumptions. First, that fit among the organizational elements of a configuration is an important determinant of effectiveness; second, that there is a limited set of effective ideal type configurations; and third, that fit can be assessed in terms of an organization's closeness to one of these ideal types. These assumptions underlie our proposition that if two IT

> configurations are close to different ideal types, then they are likely to be incompatible, thus creating problems for their integration in a merger. (p. 195)

Analysis of the case study data shows that important problems of integration can be the consequence of a more complex organizational misfit between the merging IT configurations. A primary concern with technical systems integration issues can be the outcome of a particular integration dynamic which resolves the organizational complexities associated with a prior misfit of IT organizations.

Credibility. The article is published in the peer-reviewed Journal of Strategic Information Systems, which "focuses on the management, business and organizational issues associated with the introduction and utilization of information systems as a strategic tool, and considers these issues in a global context" (Elsevier, 2011, para. 1). Philip Yetton is the director of the Australian school of business with an interest in IS-based strategic change, project management, governance, and leadership (Australian School of Business, 2011). Kim D. Johnston is a professor in the Australian school of business at the University of New South Wales, Australia.

Kim, K. K., & Michelman, J. E. (1990). An examination of factors for the strategic use of information systems in the healthcare industry. *MIS Quarterly , 14* (2), 201-215. Retrieved April 10, 2011, from http://www.jstor.org/stable/248778

Abstract. This article examines the strategic use of IT for competitive advantage in the healthcare context. Three propositions are developed from (a) re-examining a variety of successful IST applications both within and outside healthcare organizations, (b) re-applying the integration concept from the literature, and (c) examining field experiences in the healthcare industry. These propositions should serve as a basis for future empirical investigations into IST strategic applications.

Summary. Organizations have increasingly been looking for ways to create competitive advantage through information systems. Opportunities exist for hospital information systems to create a competitive advantage in hospitals and are driven by the competitive pressures found in the healthcare industry. The change from cost-based to flat fees drives the need for more efficient health care delivery.

Often researchers try to create frameworks describing the potential competitive advantage based on specific anecdotes. However, these frameworks often fail to take into account the site-specific factors that may contribute to each case. As a result, more systematic research should be conducted. Many frameworks are missing the identification of critical factors that contribute to the competitive advantage. This article addresses these factors in the area of healthcare; for a framework covering all information systems, more research would be required.

Consolidation of standalone systems is an area of interest when looking to achieve a competitive advantage. Political barriers within the healthcare industry create challenges to

system integration. Doctors work independently of the administration. As a result, the political boundaries may be higher in the health care industry and the competitive advantage must address the doctors directly. Integration opportunities are identified in multiple forms of transaction data, integration of knowledge, and the integration of group communications. The different forms of integration created through the improved communication are often the basis for deriving a strategic advantage.

The frameworks described in this article are applicable to IT beyond the scope of the health care industry. This framework can help to explain competitive advantage in the context of an M&A deal.

Credibility. The article is published in the MIS Quarterly which strives for "enhancement and communication of knowledge concerning the development of IT-based services, the management of IT resources, and the use, impact, and economics of IT with managerial, organizational, and societal implications" (MIS Quarterly, 2011). K. Kyu Kim is an assistant professor of MIS at In-ha University in Inchon, Korea. He received his BA in business administration from Seoul National University and both an MBA and PhD degree from the University of Utah. His current research interests are in MIS organizational structure, MIS implementation, MIS effectiveness, and strategic use of MIS. Jeffrey E. Michelman is an assistant professor of accounting at the University of North Florida in Jacksonville, Florida. He received his BS degree from the University of Delaware in accounting and economics, his M.H.A. degree from Washington University in St. Louis, and both an MBA and PhD degree in business from the University of Wisconsin-Madison. His current research interests include the role of accounting information in healthcare decision-making processes and the strategic use of information systems in the healthcare setting.

Lind, B., & Stevens, J. (2004). Match your merger integration strategy and leadership style to your merger type. *Strategy & Leadership, 32*(4), 10-16. Retrieved May 7, 2011, from http://dx.doi.org/10.1108/10878570410547652

Abstract. This article provides a methodology to customize planning for the integration of two businesses after a merger or acquisition. To be successful, the leaders must match their decisions and behaviors to the type of merger they are managing. Success, especially when people and relationships are all important, calls for a thoughtful, creative and differentiated approach to integration. A highly directive (even autocratic) approach works best in situations where the two entities make similar products or share many customer segments.

Summary. While many mergers or acquisitions fail to return shareholder value, those deals that include a heavy people component are especially perilous. Executives involved in M&A deals were interviewed to learn what happens after the deal is complete and to understand how leadership style affects the deal.

The authors found that leadership style does make a difference and the two biggest factors include: (a) understanding the nature of the business and having insight into the similarities or differences allows maximization of the synergy potentials (external consultants have more difficulty with this concept compared to internal leadership), and (b) when the price includes the intellectual capital of the company, leadership is especially important. Value is preserved through successful integration.

Based on similarities or differences of the two companies, there are four types of M&A deals: (a) merge and grow, (b) plan and prosper, (c) stand and hold, and (d) segment sell. Many mergers fail because managers pursue a strategy that is inappropriate for the type of deal.

Companies that do more M&A deals don't necessarily do them better unless they learn from their experiences and develop strategies for each type of acquisition. Companies that have mastered this ability tend to do smaller acquisitions. Often these companies have a corporate plan and go looking for the pieces to finish the puzzle.

Credibility. Strategy & Leadership is a bi-monthly peer-reviewed journal. Barbara Lind is a Vice President at The Concourse Group, specializing in merger and acquisition integration, organization development, and human capital management programs. John Stevens is a management psychologist, founder and managing partner of Knickerbocker & Stevens, Inc., a consultancy specializing in executive talent assessment, leadership development, and change management.

Mata, F. J., Fuerst, W. L., & Barney, J. B. (1995). Information technology and sustained competitive advantage: A resource-based analysis. *MIS Quarterly, 19*(4), 487-505. Retrieved April 10, 2011, from http://www.jstor.org/stable/249630

Abstract. This article comments on a study which examines the sustained competitive advantage of adopting IT. The authors take a resource-based view and suggest that five attributes of IT adoption might be sources of sustained competitive advantage; they conclude that only IT management is sustainable.

Summary. This paper examines how and why IT is a source of competitive advantage. "There is little doubt that, in a wide variety of circumstances, IT can add value to a firm. However, IT adding value to a firm by reducing costs and/or increasing revenues is not the same as IT being a source of sustained competitive advantage for a firm" (p. 488). The article suggests five sources of competitive advantage that include: (a) switching costs, (b) access to capital, (c) proprietary technology, (d) technical IT skills, and (e) managerial IT skills. Of the five sources, IT management skills are the only source that delivers competitive advantage. Mata et al. state:

> Managerial IT skills enable firms to manage the market risks associated with investing in IT. Firms can acquire technical IT skills by hiring programmers and analysts. They then use their managerial IT skills to help programmers and analysts fit into an organization's culture, understand its policies and procedures, and learn to work with other business functional areas on IT-related projects. (p. 498)

IT managerial skills include management's ability to conceive, develop, and deploy IT applications to support and enhance other business functions. Important IT skills include: (a) the

ability of IT managers to understand the business needs of business managers, suppliers, and customers; (b) the ability to develop appropriate IT solutions; (c) the ability to coordinate IT activities in ways that supports the business; and (d) the ability to anticipate the future IT needs of the business.

Credibility. The article is published in the MIS Quarterly which has an objective the "enhancement and communication of knowledge concerning the development of IT-based services, the management of IT resources, and the use, impact, and economics of IT with managerial, organizational, and societal implications" (MIS Quarterly, 2011). All of the authors hold PhDs in Business. Francisco J. Mata is an MIS and ICT specialist and a professor at the School of Informatics at Universidad Nacional de Costa Rica. Fuerst holds a doctorate in management information systems from Texas Tech University and is currently the dean of business at the University of Kansas. Jay Barney is a Professor of Management and holder of the Chase Chair for Excellence in Corporate Strategy at the Max M. Fisher College of Business.

O'Shaughnessy, K. C., & Flanagan, D. J. (1998, October). Determinants of layoff announcements following M&As: An empirical investigation. *Strategic Management Journal, 19*(10), 989-999. Retrieved April 10, 2011, from http://www.jstor.org/stable/3094173

Abstract. This paper examines factors that influence the probability that a layoff announcement will follow an M&A. A sample of 136 large M&As, involving U.S. targets, that occurred between 1989 and 1993 is analyzed. The analysis indicates that the probability of a layoff announcement is higher if the firms involved in the transaction are related. The probability that a layoff will be announced was not changed when the acquirer was a non-U.S. firm (cross-border transactions). Target revenue per employee before the M&A is negatively related to the probability that a layoff was announced. Target financial performance prior to the transaction and use of borrowed funds to finance the merger were not found to have an impact on the probability that a layoff will be announced.

Summary. The goal of this paper is to discuss the potential synergies and reductions in managerial inefficiency likely to occur in combinations of firms in similar lines of businesses, cross-border acquisitions, and acquisitions of poor-performing firms. Synergy occurs when two activities are combined in such a way that they are worth more combined than separately. Synergies such as economy of scale and economy of scope are often cited as potential sources of value creation during acquisitions. Operational synergy exists when the combined company is able to increase output with the same amount of input.

Research has shown that merging two companies with similar businesses is more likely to provide synergy than conglomerate acquisitions. When similar firms combine, there should be more opportunity to realize operational synergies by eliminating the redundancies in the

business. In related combinations, the managers of the acquiring firm are more likely to have the skills and resources to run the acquired firm. However, many empirical studies have failed to show that related M&As enhance the value of the acquiring firm. Rather, difficulties in managing the acquired firm or the high price of the acquired firm may be the reason for the lost value.

Credibility. The article is published in the peer-reviewed Strategic Management Journal. The journal "has since its inception in 1980 been the official journal of the Strategic Management Society. This journal is consistently rated one of the top publications in the management area" (Strategic Management Journal, 2011, para. 1). Dr. KC O'Shaughnessy is a professor in the Haworth College of Business at Western Michigan University with an interest in how organizational change and downsizing influence the performance of firms. David J. Flanagan is also from the Department of Management Haworth College of Business at Western Michigan University.

Powell, P. (1992). Information technology evaluation: Is it different? *The Journal of the operational research society , 43* (1), 29-42. Retrieved April 10, 2011, from http://www.jstor.org/stable/2583696

Abstract. All investment decisions are problematic. The IT community seems to shy away from evaluation of its investments. This paper examines IT investment in order to assess if it is radically different from other investment decisions. The lack of formal valuation of IT projects may not be due to a deficiency in the tools available to the evaluator, but to other factors. These factors are appraised and possible ways forward considered. Being able to make strong decisions regarding technical investment is critical to M&A success.

Summary. IT investment is more difficult than other investments because the cost and benefits are difficult to identify. This case study suggests four ways IT can be used as a strategic resource: (a) to gain competitive advantage; (b) to improve productivity; (c) to enable new ways of management; and (d) to develop new business. Each of these has some economic cost or value to the business. The assumption is that to improve strategic advantage some financial investment must occur.

Techniques exist to interpret the value of IT, but they have not yet seen widespread usage. If IT is going to be identified as a source of competitive advantage, it must be measurable. The lack of good metrics makes it difficult to evaluate the value of investing in IT. The slow rate of change in IT also makes thorough evaluation difficult. Often systems are passé by the time they are finally deployed, but this does not negate the need to evaluate projects. By using the techniques described in this article, management can make strong business decisions regarding technical investments in an M&A deal.

Credibility. The Journal of the Operational Research Society is a peer-reviewed journal. Operational research is the discipline of applying advanced analytical methods to help make better decisions. Professor Powell is a visiting professor at the School of Management at the University of Bath. Powell is currently researching into information systems (IS) strategy and planning particularly for small businesses and in healthcare, IS evaluation, issues of flexibility in and from IS, inter-organization systems, and e-commerce.

Powell, T. C., & Dent-Micallef, A. (1997). Information technology as a competitive advantage: The role of human business and technology resources. *Strategic Management Journal, 18* (5), 375-405. Retrieved April 10, 2011, from http://www.jstor.org/stable/3088167

Abstract. This paper investigates linkages between IT and firm performance through examination of the IT literature. The authors develop an integrative, resource-based theoretical framework, and presents results from an empirical study in the retail industry.

Summary. As the field of strategic management has grown, researchers have been increasingly interested in the role of IT and its impact on performance. IT researchers advocate a tight coupling between IT and business strategies. IT's main goal is often to implement business strategies; however, since IT can affect business strategies, the efforts need to be closely aligned.

The notion that IT itself does not create a competitive advantage is gaining researcher support. The current hypothesis consists of two propositions: (a) IT provides value by increasing coordination efforts; and (b) firms cannot expect IT to provide a competitive advantage since almost all firms now have IT. The proposed solution path is to either: (a) reinvent IT advantages perpetually through continuous, leading-edge IT innovation; (b) move first and erect unassailable first-mover advantages; or (c) embed IT in organizations in such a way as to produce valuable, sustainable resource complementarity.

The strategic-necessity hypothesis and the resource-based theory point to the same conclusion: that IT advantage depends heavily on "fitting the pieces together," i.e., on exploiting relationships among complementary organizational resources. IT literature concludes that interactions between IT and business units strongly influence IT performance and that the most important factor in maintaining a strategic and competitive IT is strong management with good relationships with business customers.

Credibility. The article is published in the peer-reviewed Strategic Management Journal. The journal "has since its inception in 1980 been the official journal of the Strategic Management Society. This journal is consistently rated one of the top publications in the management area" (Strategic Management Journal, 2011, para. 1). Thomas C. Powell is Professor of Strategy at Oxford University's Saïd Business School, and Fellow of Management Studies at St. Hugh's College, Oxford. He teaches in the MBA, MSc and Economics and Management programs (Robinson, 2011).

Sethi, V., & King, W. R. (1994). Development of measures to assess the extent to which an information technology application provides technical advantage. *Management Science*, 1601-1627. Retrieved April 10, 2011, from http://www.jstor.org/stable/2632941

Abstract. In order to measure the extent to which IT provides competitive advantage, the construct "Competitive Advantage Provided by an Information Technology Application" (CAPITA) was operationalized. A field survey gathered data from 185 top information systems executives regarding IT applications which had been developed to gain competitive advantage. Nine dimensions form the basis of a preliminary multidimensional measure or index of competitive advantage which has practical uses for competitive assessment.

Summary. Approximately one-third of the capital investment by US companies is within the IT organization. In order to choose the correct IT systems, one must be able to assess the value of different IT solutions. Assessing the value of IT has always been a difficult task. Measures are needed to justify the value of IT to senior management as well as to conduct empirical studies involving IT effectiveness.

This paper develops a set of measures to assess the value of IT. Using CAPITA, a company could rate themselves or even benchmark themselves against other companies. The key dimensions for CAPITA include: (a) efficiency, (b) functionality, (c) threat, (d) preemptiveness, and (e) synergy. An email questionnaire asked respondents to rate various dimensions of an IT application designed to create competitive advantage for their company. The respondents were top information systems executives. The CAPITA model was developed based on their responses.

Today, many assessments of IT are based on a "gut feeling". This creates unrealistic expectations about IT's ability to impact the bottom line. By using CAPITA, a company can

gain a more accurate evaluation of IT to their own company or use it to evaluate the effectiveness of a competitor.

Credibility. The article is published in Management Science, a peer-reviewed journal. The authors are established researchers and professors. Vijay Sethi has multiple graduate degrees in business and was ranked in the top 25 MIS professionals in terms of research in 1996. William R. King is a professor at the Katz Graduate School of Business at the University of Pittsburgh and has authored more than 300 papers that have appeared in leading journals in information systems, management science and strategic planning.

Tetenbaum, T. J. (2003). Seven key practices that improve the chance for expected integration and synergies. *Organizational Dynamics, 28*(2), 22-36. Retrieved April 10, 2011, from http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6W6S-49H72V5-5-1&_cdi=6606&_user=2148430&_pii=S0090261600800145&_origin=gateway&_coverDate=12%2F31%2F1999&_sk=999719997&view=c&wchp=dGLbVzW-zSkzV&md5=b132b12bc64561a6041008c40919b725&ie=/sdarticle.pdf

Abstract. The article describes seven practices that can improve the integration process of companies. Companies have standardized techniques to assess potential deals and have also developed experienced integration teams to ensure success after a deal is done. Some are working to make acquisition integration a core capability and a competitive advantage that will enhance future growth. It is emphasized that company executives seek to reduce annual expenses while creating ever more powerful operating and strategic synergies.

Summary. During an M&A, one of the biggest issues is the lack of continuity between the deal-making team and those left to do the integration. In a typical merger, only 30 percent of synergies are realized, 55 percent of the potential value is ignored or forgotten, and 15 percent is ill-conceived, failed or abandoned. While making the deal, integration is not fully appreciated or managed.

Responsibility for overseeing the integration of the deal is an integration leader. This person is selected by senior management and has the authority to set priorities, assign resources, and provide sponsorship. Tetenbaum points out:

> The role of the integration team leader is vital to the success of the project. Due to the demands of the role, the integration lead should be assigned to the project full time.

> The individual selected to be the integration team leader should be someone with high energy and resilience under stress; someone who is knowledgeable in the business and is an experienced, proven manager who can effectively translate the strategic intent into action; someone who has high credibility within the organization. (p. 29)

Business leaders need to appreciate that people create most of the business value during M&A. The savviest deal financial experts can negotiate and the most rigorous legal contract corporate lawyers can draw up will not guarantee success if the people in the two companies fail to unite behind the strategic goals underlying the consolidation.

Credibility. The article is published in the peer-reviewed journal Organizational Dynamics which focuses on "primarily organizational behavior and development and secondarily, HRM and strategic management" (Luthans, 2011). Toby J. Tetenbaum, PhD, has worked for twenty-five years as a consultant to organizations spanning Fortune 100 companies to start-up ventures on organizational behavior, culture change, and executive development.

Weber, Y., & Pliskin, N. (1996). The effects of information systems integration and organizational culture on a firm's effectiveness. *Information & Management, 30*(2), 81-90. Retrieved May 7, 2011, from http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6VD0-3VVVRD2-4-1&_cdi=5968&_user=2148430&_pii=0378720695000461&_origin=gateway&_coverDate=05%2F31%2F1996&_sk=999699997&view=c&wchp=dGLbVzW-zSkzS&md5=1973349feec7a0e00c8f64b0fef4e3c2&ie=/sdarticle.pdf

Abstract. This study tests the relationship between the integration of IS during M&As and their effectiveness. The findings point to a positive relationship between IS integration and effectiveness only when controlling for (a) IT intensity, and (b) organizational culture differences between the joining firms. Thus, managers are advised to take into account IT intensity and cultural differences during the pre-merger negotiations and during the post-merger integration process.

Summary. Since the eighties, firms have invested in IS as a way to improve productive efficiency. The goal was to improve performance, increase competitive advantage, enhance competitive advantage by lowering costs, or increasing interdepartmental efficiencies. Such coordination and integration was expected to help in exploiting scale and scope economies, especially if the strategic resources were common to several markets or industries in which the firm participated. Many companies were willing to invest in IS to exploit economies of scale after an M&A.

Synergy occurs when two business units can be run more efficiently as one. Thus, the resulting merge of the business units may be able to lower the average cost. IS integration,

especially in inventory control, order processing, and other data processing systems, are usually pursued to increase synergy and reduce fixed and variable costs. As a result, companies with a high level of IS integration might expect to be able to exploit more synergy with higher effectiveness than those that do not integrate or integrate only partially.

IT organizations have different abilities to translate IT investments into productive outputs. This is referred to as "conversion effectiveness". Things like internal politics and managerial support for the project can have an impact on the conversion effectiveness. Similar issues exist in the M&A context as well, such as cultural gaps, corporate mindset, and employee feelings regarding the M&A.

Credibility. This article is published in the peer-reviewed Information and Management Journal which "serves managers, professionals, database administrators and senior executives of organizations which design, implement and manage Information Systems Applications" (Elsevier, 2011, para. 1). Yaakov Weber heads the Integrated Studies Area at the School of Business Administration at the Hebrew University of Jerusalem in Israel. His primary research interests involve the study of effects of national and organizational culture on the integration process following international and domestic M&As. Nava Pliskin heads the Information Systems Programs at the Department of Industrial Engineering and Management at Ben-Gurion University of the Negev in Israel. Her current research interests lie in the area of Management Information Systems with emphasis on interaction between new information technologies and organizational processes.

Wijnhoven, F., Spil, T., Stegwee, R., & Fa, R. T. (2006). Post-merger IT integration strategies: An IT alignment perspective. *The Journal of Strategic Information Systems, 15*(1), 5-28. Retrieved April 4, 2011, from http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6VG3-4GV9S9F-1-3&_cdi=6027&_user=2148430&_pii=S0963868705000387&_origin=search&_coverDate=03%2F31%2F2006&_sk=999849998&view=c&wchp=dGLzVzb-zSkWA&md5=d48b96cb7809d8662218cfcce0c1f64a&ie=/sdarticle.pdf

Abstract. When a company decides to merge with or to acquire another company, a major question is to what extent to integrate the information technologies and the organization. Interpreting merger objectives to proper IT integration strategies is a complex and time-consuming process, due to a lack of explicit understanding of the problems involved. A variant of the IT alignment model is presented in which three ambition levels of mergers and IT integration are identified from the literature.

Summary. After a merger, the IT department is expected to consolidate the IT systems from both companies with minimal disruption to the business. One of the reasons for poor M&A success is the failure of the company to understand the implications of merging IT systems. Often the requirements for new system hardware and software are not included in the overall plan. IT is frequently not brought into the planning stages early enough to properly identify requirements and to project costs for the proposed merged IT.

Merging IT requires a view that combines strategic, organizational, and IT characteristics. Current literature suggests factors that improve M&A success, but do not provide a scientific method for accomplishing the task. This paper presents a theory that may help merger and IT

managers select a proper post-merger IT integration strategy" (p. 6). The authors do not suggest that their theory is the best, but rather that it is one that aligns the IT strategy with the business strategy. The literature shows a linear correlation between the ambition of the merger and the level of IT integration.

Credibility. This article is written by faculty of Business, Public Administration & Technology Department of Business Information Systems from the Netherlands and published in the peer-reviewed Journal of Strategic Information Systems. The Journal "focuses on the management, business and organizational issues associated with the introduction and utilization of information systems as a strategic tool, and considers these issues in a global context" (Elsevier, 2011, para. 1).

Willcocks, L. P., & Lester, S. (1997). In search of information technology productivity: assessment value. *The Journal of the Operational Research Society, 48*(11), 1082-1094. Retrieved April 20, 2011, from http://www.jstor.org/stable/3010304

Abstract. Despite the massive investments in IT in developed economies, the impact on productivity and business performance continues to be questioned. This paper critically reviews this "IT productivity paradox" debate. It suggests that important elements in the uncertainty about the IT payoff relate to deficiencies in measurement at the macroeconomic level, but also to weaknesses in organizational evaluation practice.

Summary. IT investments often fail to deliver the expected business value. While there are definitely projects that have failed, there are also cases where the sense of disappointment is due to the lack of tools to measure IT value. For many companies, it is impossible to separate the value of IT from the rest of the business. The first step is finding tangible measurements for IT. Once appropriate measures are in place, IT can be managed as an asset and not just expenditure. Without adequate means to measure, it is difficult to make decisions about whether it makes sense to invest in expensive and critical IT systems. The article suggests using an IT evaluation and management cycle that includes: (a) feasibility, (b) development, (c) implementation, (d) post-implementation, and (e) operations. This is referred to as the "cradle to the grave" approach of a product lifecycle. At each step, value must be determined before moving to the next step to ensure that the IT goals are being met.

As noted by Bryan, nearly one-third of the annual capital investment made by U.S. business in on computer resources (as cited in Sethi & King, 1994). With such a high percentage of capital going to IT, it needs to be closely monitored and controlled to achieve the potential synergies during an M&A.

Credibility. The article is published in the peer-reviewed Journal of Operational Research, which focuses on "applying advanced analytical methods to help make better decisions" (The OR Society, 2011). Leslie P. Willcocks is a professor at the London School of Economics & Political Science. At the time of publication, Stephanie Lester was an Information Technology Change Manager at Lloyds Register.

The Potential Role of the Information Technology Division in Reducing Risk in the Merger and Acquisition Project

Ben-David, & Raz, T. (2001). An integrated approach for risk response development in project planning. *Journal of the Operational Research Society* , 14-25. Retrieved April 10, 2011, from http://www.jstor.org/stable/254104

Abstract. The risk response development phase is a major phase in the project risk management process. We present a model that integrates project work contents, risk events, and risk reduction actions and their effects into a comprehensive framework. The model allows the representation of the overlapping effects of multiple risk reduction actions and of the impacts of secondary risk events, and supports the evaluation of the total risk exposure of the project under various combinations of risk reduction actions.

Summary. All projects will incur risk due to the fact they are one time endeavors with a goal of meeting a predetermined time, cost, and performance objectives. The need to identify and react to these risks is of great interest to academic researchers. Risk management is one of the eight areas of knowledge in the project management body of knowledge (PMBOK) from the project management institute.

The PMBOK lists four stage of risk management: (a) identification, (b) quantification, (c) response development, and (d) response control. A risk reduction action is a change that, if implemented, affects the probability of the risk occurring of impacting another risk event. The PMBOK lists several strategies for dealing with project risk: (a) avoidance, (b) reduction, (c) transfer, (d) containment, (e) contingency, (f) absorption and (g) acceptance. Each risk reduction

action has its own associated cost and effects on risks. The elimination of one risk could create a different new risk.

The model proposed is consistent with risk reduction methodologies from the PMBOK and commonly accepted concepts of risk reduction. Using the model may help managers to manage risk during a merger and acquisition project.

Credibility. The Journal of the Operational Research Society is a peer-reviewed journal. Operational research is the discipline of applying advanced analytical methods to help make better decisions. Dr. Itzhak Ben-David is an Assistant Professor of Finance at the Ohio State University Fisher College of Business. Columbus, Ohio. Ben-David holds graduate level degrees in industrial engineering, accounting, business, and finance. Dr. Tzvi Raz (deceased) was a professor of Technology Management at the Tel-Aviv University. He has edited two books and written over sixty refereed papers on various operational aspects of technology management.

Galpin, T. J., & Herndon, M. (2007). *The complete guide to mergers and acquisitions.* San Francisco, CA, USA: Jossey-Bass.

Abstract. This book presents an updated and expanded guide to planning and managing the M&A process including tools to address both the *human* and *operational* sides of integration. Based on the authors' consulting experience with numerous Fortune 500 companies, this resource examines how to capture deal synergies more quickly and effectively.

Summary. Poor M&A results can be attributed to many factors: paying too much, poor strategic fit, not enough due diligence, and a poor integration plan. All of these factors point to one basic fact: companies must manage the process extremely well if the deal is to be a success.

In the past, an M&A deal was focused around financial transactions aimed at gaining control of undervalued assets which were then resold. Today, a typical M&A deal is strategic and focuses on acquiring a customer base, distribution channel, and new geographical markets. Due to globalization, there are fewer desirable targets. Competition drives the price premium upward. In this situation, costs must be driven out of the business without any sacrifice of the ability to capture revenue-generating synergies.

Having experience conducting M&A deals greatly improves the ability to achieve a successful M&A. There are two key areas for a successful M&A. The first is *tacit knowledge*, which consists of subject specific knowledge. The second is *codified knowledge*, which refers to the written procedures a company will follow during an M&A. Even though every deal is different, an experienced M&A integration following a well-documented and thoroughly planned integration plan can achieve significant results.

Credibility. Timothy J. Galpin is an associate professor at the University of Dallas Graduate School Of Management and a senior fellow with Katzenbach Partners, LLC. He has over twenty years of experience as a management consultant and business manager based in Europe and North America. Mark Herdon is president of Parkwood Advisors, LLC, a management consultancy focused on a broad range of strategic and business effectiveness initiatives, including M&A strategy, due diligence, and integration management.

Gray, C. F., & Larson, E. W. (2008). *Project management: The managerial process.* Boston: McGraw-Hill.

Abstract. This application-oriented text provides a road map for managing any type of project. Topics include the strategic role of projects in contemporary organizations, how projects are prioritized, what tools and techniques can be used to plan and schedule projects, how project managers orchestrate the complex network of relationships, factors that contribute to the development of a high performing project team, and how senior management can develop a supportive organizational culture for implementing projects.

Summary. Projects are one time endeavors with a specified goal, timeline, budget, and performance criteria. Business leaders have claimed that project management is a strategic imperative (p. 3). Project management gives people the tools that improve the ability to plan, implement, and execute business goals. Project management has been the norm in the construction and military businesses. Now, project management is spreading to all areas.

The project life cycle is the cornerstone of project management. It allows management to see the progression of the project and its required resources in a predictable way. The project lifecycle is divided into four areas: (a) defining stage, (b) planning stage, (c) executing stage, and (d) delivering stage.

Project managers perform similar tasks as other managers. They plan, schedule, motivate and control. However, instead of managing long running operational tasks, project managers create new projects and assemble new teams to accomplish specific goals. The project manager is ultimately responsible for the success or failure of the project. The job of the project manager is to find the right people at the right time to achieve the stated project requirements. Project management has spread to all industries due to: (a) the compression of the product life cycle, (b)

global competition, (c) knowledge explosion, (d) corporate downsizing, and (e) increased customer focus. In summary, "there are a variety of environmental forces interacting in today's business world that contribute to the increased demand for good project management across all industries and sectors" (p. 12).

Credibility. Clifford F. Gray is professor emeritus of management at the College of Business, Oregon State University. His research and consulting interests have been divided equally between operations management and project management. Erik W. Larson is professor of project management in the department of management, marketing, and international business at the College of Business, Oregon State University. His research and consulting activities focus on project management.

Hillson, D., Grimaldi, S., & Rafele, C. (2006). Managing project risks using a cross risk breakdown matrix. *Risk Management, 8* (1), 61-76. Retrieved April 10, 2011, from http://www.jstor.org/stable/3867943

Abstract. Projects are complex undertakings involving a unique set of tasks and activities conducted within a set of constraints to meet defined objectives. Risk in projects is also complex, arising from a wide range of sources and having a broad scope of possible effects on the project. Given these two dimensions of project complexity, the management of the relationship between project work and project risk is a key success factor for every project.

Summary. Effective risk management requires a clear understanding of all of the risks facing a project. A large amount of risk data must be organized so it can be evaluated. The Risk Breakdown Structure (RBS) is a means of grouping project risks and likelihood together that defines the overall risk to the project. The RBS is similar to the Work Breakdown Schedule (WBS) which is used in project management to track all of the tasks, owners, durations, and due dates. The RBS is used as guide in the risk reduction process. The RBS has many uses and benefits including: (a) risk identification aid, (b) risk assessment, (c) comparison of alternatives, (d) risk reporting, and (e) lessons learned for future projects.

Using layered risk analysis can identify the most vulnerable points in a project. It is not enough to just list the risks; they must be associated to areas within the project in order to understand the priority of intervention. Cross-analysis between the RBS and the WBS can reveal project periods that have critical time periods that are high risk which require mitigation to resolve.

Credibility. Risk Management is a peer-reviewed journal with a stated purpose to generate ideas and promote good practice for those involved in the business of managing risk. Dr. David Hillson is an international risk management consultant and Director of Risk Doctor & Partners. Dr. Hillson holds the PMP® certification from the Project Management Institute (PMI®), and is a Fellow of both the UK Association for Project Management (FAPM) and the UK Institute of Risk Management (FIRM). Sabrina Grimaldi received her MSc in Electronic Engineering in 1991, from the Politecnico of Turin. She also obtained a Master's degree in "Safety and risk analysis". Since 2000, she has been a Lecturer at the Politecnico of Turin. Carlo Rafele received his MSc in Mechanical Engineering in 1984, from the Politecnico of Turin and now teaches Project Management and Industrial Plants as an Associate Professor. He has published several articles on project management and logistics.

Reuer, J. J., Shenkar, O., & Ragozzino, R. (2004). Mitigating risk in international mergers and acquistions: The role of contingent payouts. *Journal of International Business Studies, 35*(1), 19-32. Retrieved April 23, 2011, from http://www.jstor.org/stable/3875254

Abstract. In the case of international M&As, a key contractual variable is whether the parties agree to a performance-contingent payout structure, which can mitigate the risk of adverse selection. In this paper, we examine the antecedents of contingent payouts in the form of earnouts and stock payments. The results indicate that firms lacking international and domestic acquisition experience turn to contingent payouts when purchasing targets in high-tech and service industries. Firms tend to avoid contingent payouts in host countries with problems with investor protection and legal enforceability.

Summary. International M&As have become a primary means for internationalization in recent years. Unlike other modes of growth, acquisitions suffer from the acquirer's unfamiliarity with the foreign country. This is especially true if the company has little or no experience in international markets. As a result, significant inefficiencies are prevalent in international M&A deals. Previous research models indicate that when bidders cannot credibly assess the value of the deal, poor decision-making can occur. More attractive deals are overlooked while less attractive deals proceed. In the case of the latter, the acquiring company bears significant risk of failing to capture value from the deal because of paying too much during the deal.

Prior M&A experience may give the acquiring company additional benefits during due diligence and the negotiating stages. Experience may help a company gather more relevant information during due-diligence on potential targets that would be helpful initiating the acquisition more effectively. Experienced firms are more able to evaluate potential targets,

assess the claims of the other company, and reduce incentives for misrepresentation. As a result, experienced companies experience less visible risk than their inexperienced counterparts.

Credibility. The peer-reviewed Journal of International Business Studies is the "official publication of the Academy of International Business, publishing papers of significant interest that contribute to the theoretical basis of business and management studies" (Palgrave Journals, 2011). Dr. Jeffrey J. Reuer is the Blake Family Endowed Chair in Strategic Management and Governance, Strategy Area Coordinator at the Krannert School of Management, Purdue University. Dr. Oded Shenkar holds degrees in East-Asian (Chinese) Studies and Sociology from the Hebrew University of Jerusalem and a PhD from Columbia University, where his dissertation on the Chinese bureaucracy involved work in the department of Sociology, the Graduate School of Business, and the East-Asian Institute. He is currently the Ford Motor Company Chair in Global Business Management and Professor of Management and Human Resources at the Fisher College of Business at Ohio State University. Dr. Robert Ragozzino is an Assistant Professor of Strategy, School of Management, University of Texas at Dallas.

Conclusions

The purpose of this annotated bibliography is to present selected literature that identifies and describes the potential central role of the information technology division (IT) as a core partner in M&A projects from the beginning of the process through the final integration of the two companies (Vielba & Vielba, 2006, p. 3). Thirty references are analyzed in relation to three sub-topics framed for this study, which include: (a) early involvement of the IT division in merger and acquisition projects; (b) potential value added by the IT division during a merger and acquisition project, and (c) the potential role of the IT division in reducing risk in the merger and acquisition project. Topics are re-framed as questions, which provide structure to this set of Conclusions.

The goal is to increase awareness of the role that the IT division can play toward improving the likelihood of success of M&A and the opportunities that IT can create, such as reduced risk for the business and more accurate IT cost estimates (Vielba & Vielba, 2006). The underlying assumption is that the addition of the IT division to the core team throughout the initial stages of an M&A project (i.e., (a) due diligence, (b) deal sign, and (c) integration) would add value and decrease the risk to any merger or acquisition project (Mata, Fuerst, & Barney, 1995).

How can the role of the IT division during an M&A be assessed to show contributed value?

Through competitive advantage. As global competition increases, top level managers expect all areas of the organization to identify opportunities to make the company more competitive. In general, a company is said to have attained a competitive advantage when it implements a system or solution that places the competitor at a significant disadvantage (Mata, Fuerst, & Barney, 1995).

Gaining competitive advantage is one of the goals of a merger or acquisition. "After the merger, the acquirer may be able to lower its average cost curve due to integration of functions and processes, and to gain competitive advantage over competing firms by reducing prices and thus capturing a greater market share" (Weber & Pliskin, 1996, p. 82). Hinterhuber (2002) notes that experienced integrators know that synergy realization can never be the ultimate aim of a merger or acquisition, but rather that a strongly competitive organization will produce earnings and cash flow consistently above expectations (Hinterhuber, 2002). "Integration plans are a key factor in achieving the desired synergies in a union, thereby gaining competitive advantage. As such, integration should not be left to chance; it must be planned" (Tetenbaum, 2003, p. 34).

As noted by Bakos and Treacy (1986), as well as Kim and Michelman (1990), organizations are increasingly turning to the IT division as a source of competitive advantage; superior technology is viewed as an area of competitive advantage for IT. "The ability to use IT to leverage the fundamental resource advantages of firms enables IT to be a potential source of sustained competitive advantage" (Mata, Fuerst, & Barney, 1995, p. 491). However, technology can be acquired by the competitors and thereby erode the source of the competitive advantage. Powell and Dent-Micallef (1997) note that the "difference in competitive and economic benefits that companies gain from IT rests on a management difference and not a technical difference. Some business leaders are somewhat better able to fit the pieces together than others" (p. 379). Mata, Fuerst, and Barney (1995) suggest that "only IT managerial skills are likely to be a source of sustained competitive advantage" (p. 500).

Through measurement. Vielba and Vielba (2006) note that "The financial contribution of IT to the M&A process is growing and can be significant. In one case, synergies attributed to IT in its last acquisition were estimated to be 50 per cent of the total savings achieved" (p. 12).

However, Powell (1992) posits that twenty years ago most writers in the IT-field who tackled the problem of computer system investment appraisal felt that the costs and benefits associated with computer systems are difficult to quantify. For many of the more advanced and intensive IT users, it becomes increasingly difficult to separate out the impact of IT from that of other assets and activities as the IT infrastructure becomes an inextricable part of the organization's processes and structures (Willcocks & Lester, 1997). "It would appear that analysts do not attempt to estimate the worth of the target's IS in terms of effectiveness and quality" (McKiernan & Merali, 1995, p. 57).

The ability to measure the contribution from IT is needed in order to demonstrate and justify the importance of IT to the top management (Sethi & King, 1994). Chatterjee (2007) notes that the relatively recent HP/Compaq merger was a success because of the ability to be accurately measured. In the typical merger, only 30 percent of synergies are realized, 55 percent of the potential value is ignored or forgotten, and 15 percent is ill-conceived, failed, or abandoned (Tetenbaum, 2003, p. 25).

Through identification of an integration manager. "Effectively integrating the IT division in mergers of large organizations can be critical to merger success" (Johnson & Yetton, 1996, p. 189). Even though the integration of two companies is a delicate and complex process, there has historically not been any identified owner for this task (Ashkenas & Francis, 2000). The responsibility for overseeing the integration of the two companies is usually assigned to an *integration team* selected by senior executives who provide sponsorship, set priorities, and allocate resources (Tetenbaum, 2003). The leader of the integration team, known as the *integration manager*, should be someone who is actively engaged in the process from the earliest

discussions so that they are intimately in tune with the business case: the strategic intent, the strategic levers, and the critical success factors (Tetenbaum, 2003).

At the start of an M&A, most of the people involved are typically strangers who are thrown together to complete the deal. Often, employees involved in the M&A have to keep the existing business running while they are building new relationships with the M&A team to address business gaps, communications gaps, and cultural gaps. One of the roles of the integration manager is to clear paths between the two business cultures by facilitating the social connections among people on both sides (Ashkenas & Francis, 2000). "Friendship, trust, and interpersonal communication can take years to develop to the point where IT managers and managers in other business functions are able to effectively work together to create and exploit novel IT applications" (Mata, Fuerst, & Barney, 1995, p. 499). The integration manager doesn't have years to create these interpersonal relationships and must be prepared to build relationships quickly. As a result, the role of the integration manager is vital to the success of the implementation phase of an M&A project (Tetenbaum, 2003).

How can the role of the IT division during an M&A reduce risk to help maximize business value of a merger or acquisition?

Through project management. Practitioners and researchers have shown a great deal of interest in the need to identify and manage project risk (Ben-David & Raz, 2001). The concept of project management assumes there are many unknowns and this means "that decisions must be made under conditions of uncertainty in all phases of the project. To support this decision-making a number of analyses addressing risk and uncertainty are performed during the life of a project" (Sandoy, Aven, & Ford, 2005). Two of the biggest challenges in managing projects are the work to be accomplished and the risks that could impact the achievement of those objectives

(Hillson, Grimaldi, & Rafele, 2006). "Successful and effective risk management requires a clear understanding of the risks faced by the project and business which involves more than simply listing identified risks and prioritizing them by their probability of occurrence and impact on objectives" (Hillson, Grimaldi, & Rafele, 2006, p. 63).

"Virtually every organization uses IT in some form or another and for many IT is critical to the business model: reducing the risks associated with IT, therefore can make a significant contribution to reducing the overall risks surrounding M&As" (Vielba & Vielba, 2006, p. 3). Managing the relationship between project work and project risk is a key success factor for every project (Hillson, Grimaldi, & Rafele, 2006). "In order for M&As to be successful, they require excellent planning, management, and communications skills" (Vielba & Vielba, 2006, p. 187).

Through added business value. Buyers optimistically eye the major savings they believe can be gained from newly combined companies in the form of value creation, renewal, or strategic and operational advantages neither company could achieve on its own (Tetenbaum, 2003). "IT can constitute a major element of both the costs and the synergies in an M&A" (Vielba & Vielba, 2006, p. 43). The M&A deal can create value through operational synergies when the combined firm is able to increase outputs relative to inputs (O'Shaughnessy & Flanagan, 1998). IT isn't responsible for creating the synergy or increased value, but rather it ratifies and implements them in visible ways throughout the combined organization (McKiernan & Merali, 1995). "For companies, effective management of technology in M&As can influence acquisition success or failure and the impact of acquisition on the innovative capabilities of the firm. This can be important even where technology is not the main motive for the acquisition" (James, Georghiou, & Metcalfe, 1998, p. 565).

"Many companies have paid the price by making unrealistic assumptions about IT synergies or costs that later proved inaccurate, thus making costly mistakes" (Vielba & Vielba, 2006, p. 117). However, by adding IT to the M&A deal-making process, there is the potential to avoid costly errors and reduce the failure rate of M&A deals. More importantly, it may help the acquiring company realize more value from the technology assets they acquire (James, Georghiou, & Metcalfe, 1998).

No matter the site or nature of the M&A deal, the emphasis should always be on the business. Technical issues will always need to be resolved, but since the CIO plays a prominent role in corporate strategy, they must put the bottom line first (Battey, 2000). If IT issues are not managed correctly, "poor post-acquisition management by the acquirer can destroy the very innovative potential of the target that it sought to acquire" (James, Georghiou, & Metcalfe, 1998, p. 565).

How can the early involvement of the IT division reduce the overall cost of a merger or acquisition?

Through due diligence. Due diligence has always been a critical component of any M&A deal. When a company is purchasing another, it wants to make sure there are no potential problems. It is the time between getting engaged and the actual wedding ceremony (Ojala, 2006). "Whatever the scale of the M&A, the first chance to get it right is at due diligence stage; later is much more difficult" (Vielba & Vielba, 2006, p. 120).

IT is an integral part of most business functions, therefore IT due diligence should play a critical part in the pre-M&A due diligence (Garrie & Griver, 2009). Because time is limited and companies are only willing to share so much information prior to deal completion, due diligence may not always find all of the skeletons in a company's closet (Reingold & Barett, 2000). In

order to ensure success after due-diligence, the deal team must learn to ask the right questions (James, Georghiou, & Metcalfe, 1998).

Through early involvement. It might be expected that IT involvement would begin during the operational phase of an M&A deal. However, all CIOs in the case studies reviewed in this bibliography point out that the early involvement of IT is essential to a successful transaction (Vielba & Vielba, 2006).

While conducting due-diligence, it is "rare to spot something that kills the deal, but it isn't uncommon to uncover some information that leads to a re-valuing the deal" (Greengard, 1999, p. 70). However, the lack of early involvement from IT in the M&A process leads to millions of dollars in expenditures each year as companies underestimate the ratio of the synergies compared to the IT costs (Vielba & Vielba, 2006). The IT division cannot afford to enter the M&A process in the later steps. The earlier IT is involved the greater the chances of success (Vielba & Vielba, 2006).

In addition, in many M&A deals, the planning for IT occurs after the acquisition transaction has been completed (McKiernan & Merali, 1995). By not having an IT acquisition strategy completed earlier, the IT costs of the acquisition can outweigh the synergies achieved, thus hurting the potential competitive advantage (Vielba & Vielba, 2006).

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