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INFORMATION SYSTEMS AND CORPORATE ACQUISITIONS: AN EXPLORATORY STUDY OF MANAGEMENT INFORMATION SYSTEM ACQUISITION STRATEGIES

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Submitted to the Faculty of the University Graduate School
in Partial Fulfillment of the Requirements
for the Degree
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in the School of Business
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To Curt, you've been there all along, waiting on the sidelines. Thank you. I'm looking forward to spending the rest of my life with you.

ABSTRACT

In a corporate acquisition, there are many important questions concerning information systems. Many researchers have examined the integration process that occurs once an acquisition has been made. This research applies strategies identified by management researchers in an information systems context. The first question addressed is: *What are the different strategies followed by MIS managers when faced with a corporate acquisition?* The second part of the analysis involves identifying the circumstances under which these MIS acquisition strategies are most appropriate.

To address these questions, in-depth case studies were performed and a survey was administered to a wide sample of MIS managers who had participated in publicly announced acquisitions. We clearly identified two MIS acquisition strategies, *maintenance* and *replacement*. Evidence of a third strategy, *synthesis*, was mixed. We found a remarkable level of consistency between the integration strategy at the overall level and at the MIS level.

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Chapter 1 - INTRODUCTION

A pronounced feature of our society is an increased rate of change. In the past, organizations often continued to operate in the same mode for many years, but changing environments now demand that these organizations respond and adapt very quickly. Information technology (IT) has played a key role in increasing the rate of change and in enabling organizations to respond to these changes.

Huber (1984) describes a "post-industrial" society and proposes that organizations will be radically different. He says:

> *Post-industrial society will be characterized by more and increasing knowledge, more and increasing complexity, and more and increasing turbulence. These ... will pose an organizational environment qualitatively more demanding than those in our experience (p. 931).*

This increasingly turbulent environment demands that organizations be able to react more quickly and more frequently, and increases the need for timely communication.

Drucker (1992) describes these changes as a shift to a knowledge society. No longer are land, labor, and capital the primary resources. While still important, they are supplanted by knowledge. He sees a growing trend toward "knowledge workers," which he estimates as one-third of the current workforce (p. 101). These societal changes have

been made possible because of the development of information technology (IT). Advanced information technologies pervade modern organizations and have a profound impact on their operation.

The Management in the 1990s Research Project was conducted at MIT to "examine the profound impact that information technology (IT) is having on organizations of all kinds" (Scott Morton, 1992). Six basic findings emerged from this extensive research program (see **Figure 1**). They can be summed up by saying that information technology is fundamentally changing the way that society, and business in particular, operates. Huber (1990) suggests that much of our present knowledge about organizations may be altered by the presence of IT.

Figure 1 Findings from Management in the 1990s (Scott Morton, 1992).

1	IT is enabling fundamental changes in the way work is done.
2	IT is enabling the integration of business functions at all levels within and between organizations.
3	The introduction of IT, resulting in changes in the degree of interrelatedness, is causing shifts in the competitive climate in many industries.
4	IT presents new strategic opportunities for those organizations willing and able to step back and reassess their mission and operations.
5	Successful application of IT will require changes in management and organizational structure.
6	A major challenge for management in the 1990s will be to lead organizations through the transformation necessary to prosper in the globally competitive environment.

Despite the importance of information technology to organizations, there is evidence that they often do not give adequate consideration to IT when undergoing organizational change. One particular type of organizational change that occurs frequently

is a merger or acquisition. When this takes place, there is a potential for information systems to either enable this change or to serve as a roadblock. An American Management Association report (Bohl, 1989) indicates that the capabilities of information systems are often assumed in a merger or acquisition, and that it is the area least likely[1] to receive attention prior to a merger decision.

A merger or acquisition occurs when multiple organizations, previously functioning as separate entities, combine into one legal entity. There is no clear distinction between a merger and an acquisition, but the difference is generally accepted to be associated with the relative size of the two entities prior to the event and which of them maintains a dominant management role after the merger (Buono and Bowditch, 1989, pp. 60-61). To avoid confusion, we will use the term corporate acquisitions.

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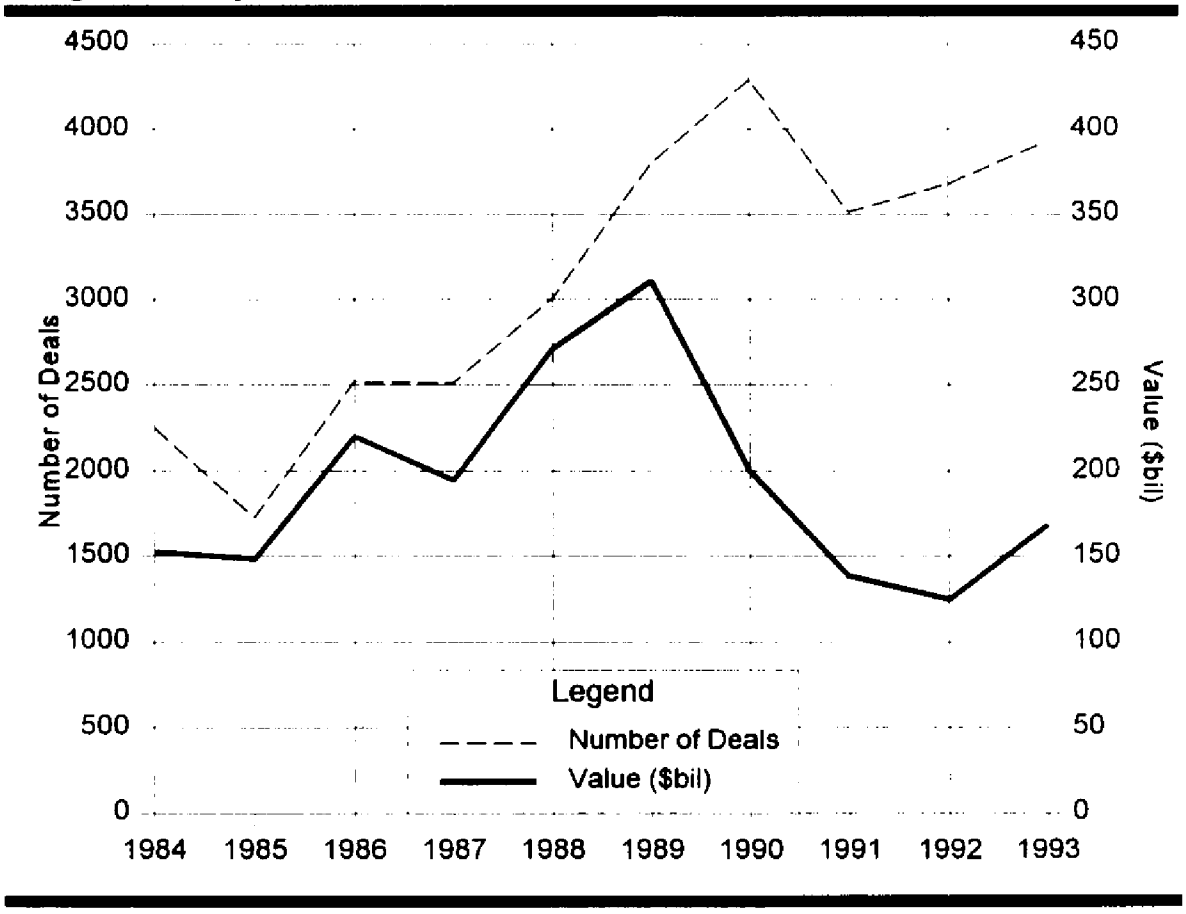
[1]When compared to areas such as finance, production, sales, and human resources.

While the boom of the 1980s[2] appears to have subsided, acquisitions are now commonplace in the global economy. A new wave may occur in the 1990s. Indeed, the rate of acquisitions in 1993 was double that of 1992, approaching rates of the mid to late

Figure 2 Merger and acquisition completions, 1984 to 1993 (Mergers and Acquisitions, 1994).



1980s (Smith, 1993). Whether this spurt of activity is the beginning of a new wave or simply a temporary aberration will be determined over the next few years. The chart in

[2]Golbe and White (1988) identify four surges of acquisition activity in the United States. They occurred around the turn of the century, in the late 1920s, in the late 1960s, and in the 1980s.

Figure 2 shows the number of deals and the total value of corporate acquisitions involving American companies from 1984 through 1993.

At the same time, studies show that at least half of acquisitions are not successful (Porter, 1987; O'Connell, 1985).[3] These failures constitute an enormous cost to the acquiring firms. Parent firms often commit large amounts of resources to acquired firms. Only after considerable losses have been incurred is divestment pursued (Porter, 1987). There is a clear need for a more complete understanding of the factors which contribute to the success or failure of acquisitions.

This dissertation proposal puts forth a plan for research into management information systems in the context of corporate acquisitions. This dissertation will address the following questions:

1. *What are the different strategies followed by MIS managers of acquiring firms when a corporate acquisition occurs?*
2. *If different MIS acquisition strategies can be identified, can we identify an appropriate fit between particular MIS acquisition strategies and overall features of the acquisition?*

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[3]Porter examined acquisitions made in the U.S. from 1950 to 1986. O'Connell cites a study by McKinsey and Co. of acquisitions made from 1972 to 1983. We are not aware of similar comprehensive studies of success rates for later acquisitions.

Chapter 2 - LITERATURE REVIEW

There are many areas of research that are applicable to this study. The following review consists of five main sections. First, we will discuss the various dimensions of acquisitions identified by researchers. Second, applicable prescriptive research will be covered. Third, we will briefly review financial research on acquisitions. Fourth, the management research on three factors found to be important in acquisitions will be reviewed. Finally, we discuss the few studies that examine the role of MIS in the context of corporate acquisitions.

Dimensions of Acquisitions

The Federal Trade Commission categorizes corporate acquisitions according to five mutually exclusive categories, shown in **Figure 3**. These categories relate the acquired firm to the

Figure 3 FTC classifications of mergers and acquisitions (FTC, 1981).

Horizontal	The companies involved produce one or more of the same, or closely related, products in the same geographic market.
Vertical	The companies involved had a potential buyer-seller relationship prior to the merger.
Product Extension	The companies are functionally related in production and/or distribution, but sell products that do not compete directly with one another.
Market Extension	The companies manufacture the same products, but sell them in different geographic markets.
Unrelated	This category involves the consolidation of two essentially unrelated firms.

acquirer in terms of products and markets.

There are several other methods of classifying types of acquisitions. Shelton (1988) investigates the effectiveness of four acquisition types, which are based on Salter and Weinhold (1979). Nahavandi and Malekzadeh (1993) utilize a similar typology to examine the relationship between acquisition type and post-acquisition organizational structure of the acquired and parent firms. These two classification schemes are compared with the FTC categories in **Figure 4**. Other studies combine horizontal and market extension (e.g., Amburgey and Miner, 1992) or horizontal and product extension (e.g., Lubatkin, 1983) or propose different classifications (e.g., Hopkins, 1987; Napier, 1989). Because the FTC classifications appear to be most frequently used by researchers, we will follow that terminology in discussing acquisition types.

Figure 4 Comparison of acquisition types.

Federal Trade Commission (FTC, 1979)	Four Types of Strategic Fit (Shelton, 1988)	Types of Mergers (Nahavandi and Malekzadeh, 1993)
Horizontal	Identical	Related
Vertical	(not included)	Vertical
Product Extension	Related-Complementary New products; similar customers	Concentric
Market Extension	Related-Supplementary Similar products; new customers	
Unrelated	Unrelated	Conglomerate

Acquisition Goals

Acquisitions also vary on other dimensions. Haspeslagh and Jemison (1991) identified goals of acquisitions at different levels of the organization. At the strategic level, acquisitions can be classified into three categories: *Domain-strengthening*, *Domain-extending*, and *Domain-exploring*. Domain-strengthening acquisitions are made to strengthen a firm's existing market position. These could be acquisitions that were horizontal, product extension, or market extension type according to the FTC types. Domain-extending applies the firm's capabilities in areas which are complementary. This type of acquisition seeks to "apply the firm's existing capabilities in new, adjacent businesses or bring new capabilities into the firm" (Haspeslagh and Jemison, 1991, p. 33). Domain-exploring acquisitions move the acquirer into new industries, with the intent to grow. The motive for this type of acquisition may be concern over the long-term viability of the core business of the acquiring company or the desire to apply management skills to increase the firm's growth rate. These classifications are independent of the acquisition types as defined by the FTC.

Haspeslagh and Jemison (1991) also identified four different ways value can be created when looking at specific acquisitions. *Combination benefits* are those advantages based on size alone, such as purchasing power and financing capability. *Resource sharing* includes economies of scale and scope. Economies of scale result, for example, when the volume of production in the combined firm allows it to operate at a lower cost per unit. *Functional skill transfers* result when one firm has functional knowledge that the combined firm can use to increase its competitiveness. *General management skill transfer*

occurs when one firm can help the other become more competitive by improving management. According to Haspeslagh and Jemison, these benefits can occur in any type of acquisition, and in an acquisition with any of the above strategic goals. In most situations, one type of value creation will be dominant. The benefits sought from an acquisition will impact the type of acquisition integration approach chosen.

Figure 5 Dominant sources of value creation and level of strategic interdependence (Haspeslagh and Jemison, 1991).

Level of Strategic Interdependence			
Low			High
Combination Benefits	General Management Skill Transfers	Functional Skill Transfers	Resource Sharing

Adapted from text, pp. 139-142.

These methods of value creation vary according to the level of strategic interdependence necessary to create the value (see **Figure 5**). In acquisitions seeking combination benefits, very little interaction is necessary. For example, the firms can raise additional capital in financial markets without combining any operations. Those acquisitions seeking resource sharing benefits will have much higher levels of interaction. The firms must be combined at the operational level to share equipment and other resources. The relationships of these benefits are illustrated in **Figure 5**. Combination benefits are not truly creating new value at a strategic level, whereas the other three benefits are considered value creating because they require the transfer of capabilities between the firms.

Figure 6 Comparison of acquisition goals.

Haspeslagh and Jemison (1991)		Walter and Barney (1990)
Strategic Goals of an Acquisition	Domain strengthening	Manage critical interdependencies
	Domain extending	Expand product lines and markets
	Domain exploring	Enter new businesses
Sources of Value Creation	Resource sharing	Economies of scale and scope
	Combination benefits	Maximize financial capability

Walter and Barney (1990) have identified five different acquisition goals. All five appear to be incorporated in Haspeslagh and Jemison's (1991) classifications. However, Haspeslagh and Jemison identify three of these goals as being strategic goals of the acquisition. The other two are similar to two of the four sources of value creation discussed in the previous paragraph. *Managing critical interdependencies* is similar to *Domain-strengthening*; *Expanding product lines* is similar to the *Domain-extension*; and *Entering new businesses* is similar to *Domain-exploring*. *Economies of scale and scope* is similar to Haspeslagh and Jemison's *Resource sharing*; *Maximizing financial capability* is a portion of *Combination benefits*. These similarities are summarized in **Figure 6**. Walter and Barney (1990) thus provide some support for Haspeslagh and Jemison's (1991) typologies of sources of value creation and strategic goals. It is not clear, however, whether these two dimensions are actually independent. Because of these similarities, the model developed in Chapter 3 will use Haspeslagh and Jemison's (1991) designations of strategic goals of the acquisition (*Domain-strengthening*, *Domain-extending*, and *Domain-exploring*) and

sources of value creation (*Combination benefits*, *Resource sharing*, *Functional skill transfers*, and *General management skill transfers*).

Prescriptive Research

Management literature has been replete with prescriptive recommendations for successful mergers, some made by respected academics. Drucker (1981) presents five rules which are often regarded as valid. They are:

1. *Acquire a company with a common technology or market. Financial ties are not sufficient.*
2. *Consider carefully your firm's contribution to the acquired company. It should be more than a financial contribution.*
3. *Respect the products, markets, and customers of the acquired company.*
4. *Be prepared to provide new top managers for the acquired company within one year.*
5. *Within the first year, a significant number of managers of both firms should be promoted to positions in the other firm.*

Other researchers have reviewed these rules (see Paine and Power, 1984) and suggest that while they may be helpful in some situations, their validity is unclear. Following these rules is neither sufficient nor necessary to ensure a successful acquisition.

Porter (1987) similarly offers three tests. He suggests that a successful acquisition will result if the acquired firm is in an attractive industry, if the cost of entry is relatively low, and if it will gain a competitive advantage from the parent firm.

O'Connell (1985) provides "seven deadly sins" for an acquiring company. They are:

1. *Paying too much*
2. *Assuming a boom market won't crash*
3. *Leaping before looking*
4. *Straying too far afield*
5. *Swallowing something too big*
6. *Marrying disparate corporate cultures*
7. *Counting on key managers staying*

This type of prescriptive advice may be useful, but it does not provide a solid base of knowledge. Some of it is even contradictory. For example, some advocate moving quickly while others warn against such action (e.g., Business International, 1988; Clark, 1991; Cox, 1981). Research is needed to determine what factors actually contribute to successful corporate acquisitions.

Financial Research on Acquisitions

Much empirical research has been done on acquisitions from a financial standpoint--examining returns to stockholders (e.g., Turk, 1992; Healy, *et al.* 1992; Jarrell, *et al.* 1988). These researchers consider an acquisition to be a discrete event, and trace the effects of that event on subsequent earnings. The data appear to indicate that economic value is created through acquisitions, but that most of the gains accrue to the stockholders of the acquired firm (Datta, *et al.* 1992). One event study attempted to isolate the source

of value creation, and found some synergy from combining operations of related firms (Seth, 1990).

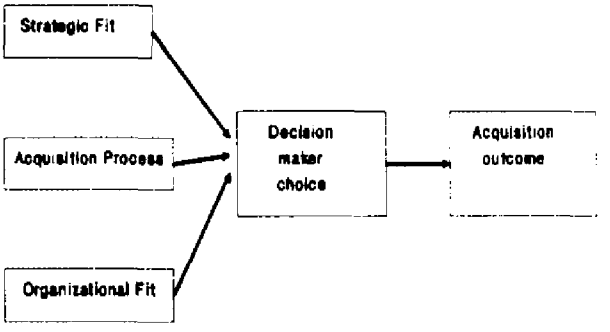
Many studies have compared different types of acquisitions, as defined by the FTC, attempting to identify those which resulted in higher returns. Results have been mixed. Some researchers have shown that the shareholders of the acquired firms received higher returns when the acquisition types were related (horizontal, product extension, or market extension) compared to those that were not (Singh and Montgomery, 1987). Others compared product extension with unrelated acquisitions and found higher returns for those that were unrelated (Chatterjee, 1986). Some found no effect of industry commonality on performance (Fowler and Schmidt, 1989), while others found superior returns for vertical acquisitions, but no significant differences to stockholders in any of the other types (Lubatkin, 1987).

These inconsistent results indicate that our examination of acquisition success must expand beyond purely financial analysis. Haspeslagh and Jemison (1987) criticize studies that have used large samples of financial data and drawn general conclusions about acquisition success and failure. They argue that what occurs in the acquisition process, from negotiation through integration, can vary widely, and can make the difference between success and failure.

Factors Important in Acquisitions

Jemison and Sitkin (1986) suggest there are at least three factors that contribute to the success of an acquisition. They include strategic fit, organizational fit, and the acquisition process itself. This highly cited model is shown in **Figure 7**. The acquisition process does not stop when the acquisition decision has been made. It continues and includes factors such as the imposition of management controls and the overall integration of the acquired firm. Jemison and Sitkin (1986) call for additional research into various aspects of the acquisition process, and suggest that factors in this overlooked area may significantly contribute to the success or failure of an acquisition.

Figure 7 A process perspective on corporate acquisitions (Jemison and Sitkin, 1986).



The Jemison and Sitkin model makes extensive use of the concept of "fit." There are actually several different approaches to measuring "fit" or alignment in strategic

Figure 8 Concepts of Fit (Venkatraman, 1989; Chan and Huff, 1993(b)).

	Description
Moderation	A contingency perspective is stressed, as depicted in the example hypothesis: The impact of X on Z is moderated by Y.
Mediation	An intervening variable. X impacts Y which impacts Z.
Matching	A match between X and Y impacts Z.
Gestalt	Fit is defined in terms of internal coherence among a set of variables.
Profile deviation	Fit is seen in terms of the degree of adherence to a specified ideal profile.
Covariation	Fit is viewed as a pattern of covariation or internal consistency among a set of variables.

management research. Venkatraman identifies six different approaches, summarized in **Figure 8** (1989).

Matching is the approach used most often by researchers in corporate acquisitions. The firms are examined for consistency on various factors. The following discussion covers much of this research and is organized according to the factors identified in the Jemison and Sitkin model—strategic fit, the acquisition process, and organizational fit.

Strategic Fit

Researchers in strategic management have focused on the strategic fit of corporate acquisitions.[4] The importance of having an acquisition strategy and only purchasing those companies fitting that strategy is similar to the recommendations by Drucker discussed earlier (see Salter and Weinhold, 1979). Various types of strategic fit can be identified.

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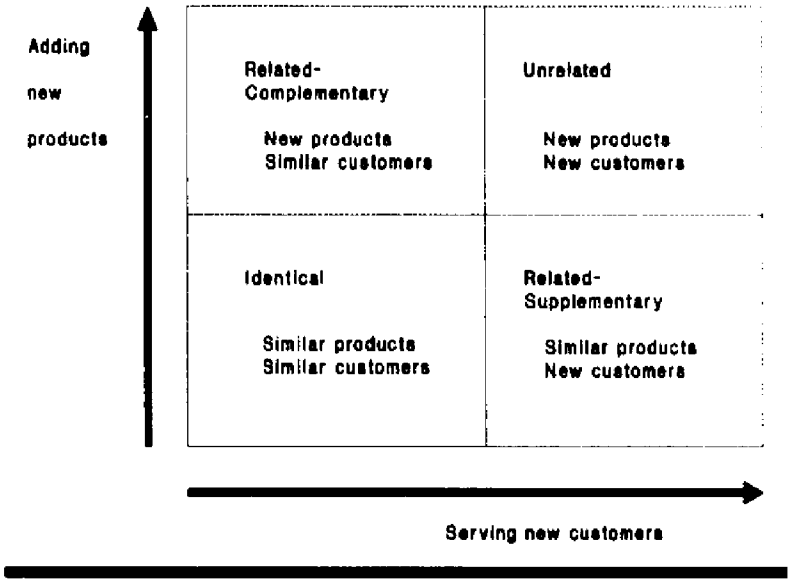
[4]Jemison and Sitkin (1986) define strategic fit as "the degree to which the target firm augments or complements the parent's strategy and thus makes identifiable contributions to the financial and nonfinancial goals of the parent" (p. 146).

Shelton (1988) developed a matrix of four possible types of strategic fit (**Figure 9**). Her analysis revealed that acquisitions providing access to new but related markets were more likely to be successful (based on abnormal stock returns) than those involving unrelated markets. Other research has shown that strategic fit is important, and various facets of this factor have been examined (Chatterjee, 1986; Lubatkin, 1987; Seth, 1990). Other research comparing the rates at which unrelated and related acquisitions were re-sold was inconclusive (Montgomery and Wilson, 1986). Most of these studies, however, are quite similar to the strict financial analyses discussed earlier, with a similar mixture of results.

Figure 9 Strategic fits between acquiring and target firms (Shelton, 1988).



Organizational Fit

Other management researchers have begun to examine organizational fit. Jemison and Sitkin (1986) define organizational fit as "the match between administrative practices, cultural practices, and personnel characteristics of the target and parent firms" (p. 147). This refers to the compatibility of the firms' mode of operation.

Two facets of organizational fit, management styles and reward and evaluation systems, were examined by Datta (1991).[5] This study found perceived differences in management style were an important indicator of post-acquisition performance. The level to which the firms were integrated after the acquisition was expected to influence this relationship. Findings indicated, however, that the level of integration did not have a moderating effect. Differences in management style had a negative impact on post-acquisition performance regardless of the degree to which the firms were integrated. Differences in the reward and evaluation systems did not have an effect on performance.

The results from Datta (1991) indicate that some facets of organizational fit are important in acquisitions regardless of the level of integration of the firms' operations. A potential problem with this particular study is that the survey questions determining the degree of difference in management style asked for the perceptions of differences, an indirect measure.[6] The data were collected from managers in the acquiring firm after the acquisition. It is possible that an acquisition that had failed would influence managers to think the differences were more substantial than they actually were.

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[5]Datta describes management style as "comprising a number of factors, including the management group's attitude towards risk, their decision-making approach, and preferred control and communication patterns." Reward and evaluation systems include indices used to measure performance, types of performance indicators used, as well as the form and administration of compensation such as salary, bonuses, and incentives (1991, pp. 283, 285).

[6]Datta's survey asked respondents to indicate the extent of perceived differences on a five point Likert scale (1=very similar, 5=very different) on items such as "approach to management problems" and "getting line and staff personnel to adhere closely to formal job descriptions" (1991, pp. 287, 294). A more direct measure would have been to assess the management styles of each firm's management and make appropriate comparisons. This approach, however, would have made data collection much more difficult.

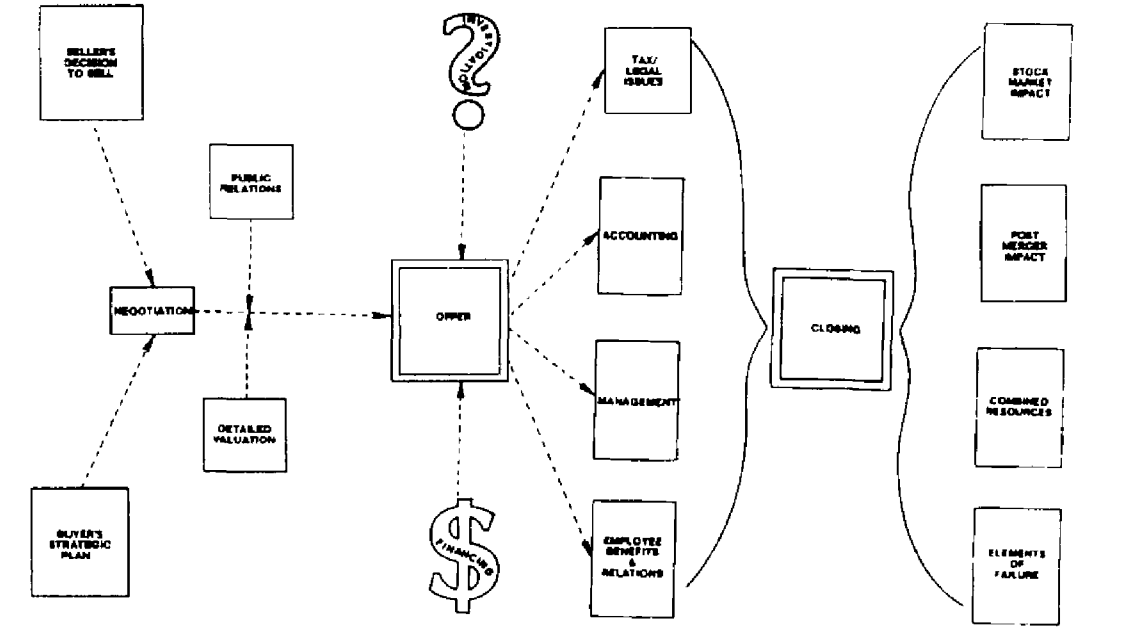
The concept of organizational fit has proved difficult to define, and remains unclear. A more explicit definition of organizational fit and additional research into its various facets will be required to determine its actual effect. Information systems is one facet of organizational fit. The model in Chapter 3 proposes examining information systems and corporate acquisitions at the functional level to allow a closer examination of what occurs. Perhaps this approach to decomposing the complex concept of organizational fit in acquisitions will result in increased understanding.

The Acquisition Process

One of the first researchers to examine the process rather than the financial outcome of acquisitions was Kitching (1967). This study found more risk in unrelated acquisitions. Kitching used a combination of manager's perceptions of acquisition success and financial performance in determining success and failure. A recent replication of this study (Hunt, 1990) finds little support for the previous work. The one exception was that Hunt also found widely disparate company size (acquisition less than two percent of the size of the parent) led to a higher failure rate. Parent firms may be quicker to divest a small acquisition when it is perceived to be unsuccessful. A larger acquisition represents a more substantial commitment on the part of the parent firm, and would thus merit continued effort.

Various researchers have modeled the acquisition process.[7] Some start with the search for acquisition candidates and end with the closing of the deal. One model of this process is proposed by Lee and Colman (1981). Shown in **Figure 10**, it illustrates how various functional areas should be given consideration prior to closing. This review process is typically called "due diligence." While information systems is not included specifically, its increasing importance in organizations should justify its inclusion along with the tax/legal issues and accounting. This model also shows areas of outcomes. But the effects of an acquisition are just beginning when the legal combination is consummated.

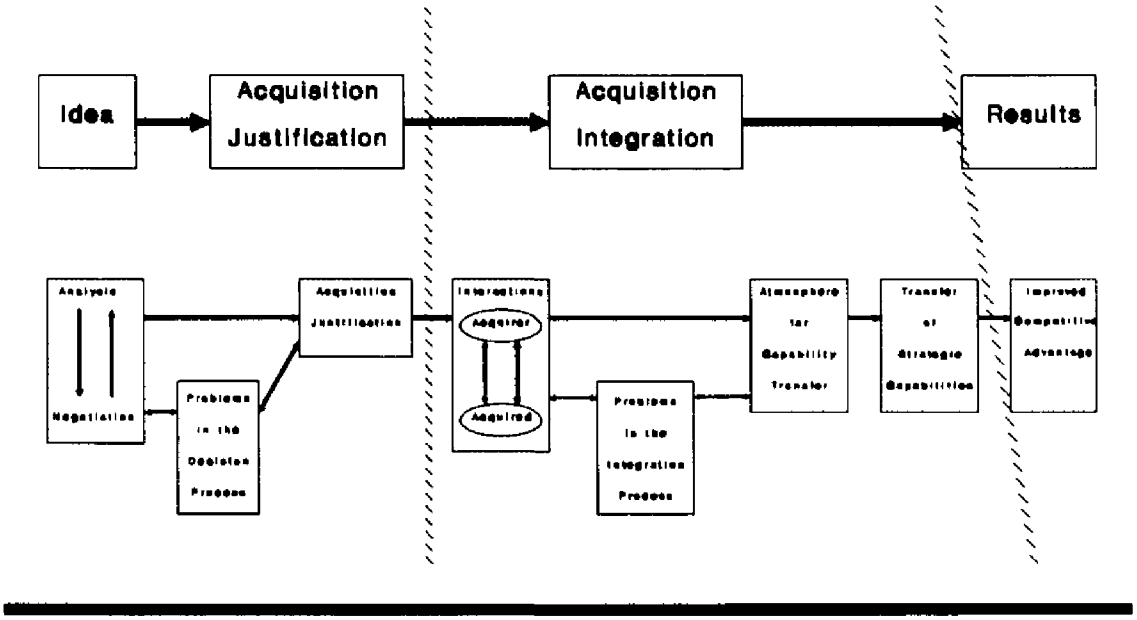
Figure 10 Schematic diagram of the acquisition process (Lee and Colman, 1981).



[7]The Jemison and Sitkin model in **Figure 7** is a factor model, and does not actually reflect the process of an acquisition.

Haspeslagh and Jemison (1991) propose a model which goes beyond the closing of the deal to address the integration process which follows the closing of the acquisition. The top half of **Figure 11** illustrates their basic process model, with a more detailed view shown below.[8] What occurs during the integration process (between the dotted lines) is a major portion of the total acquisition process.

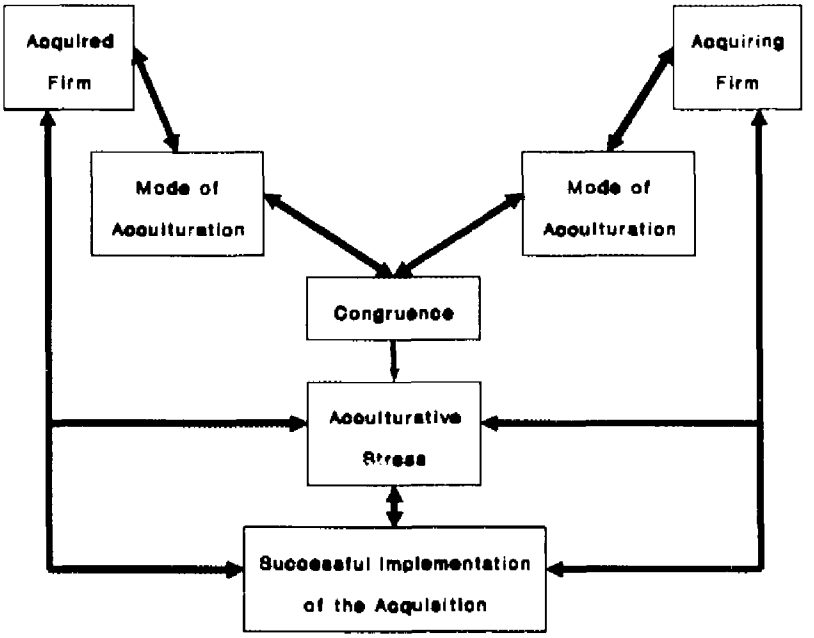
Figure 11 The acquisition process (Haspeslagh and Jemison, 1991).



[8]**Figure 11** is a combination of figures from Haspeslagh and Jemison (1991). See pages 42, 107, and 123.

A different perspective is offered by Nahavandi and Malekzadeh (1988), who view acquisition integration from a cultural perspective. In their model (**Figure 12**), it is the congruence of the desired mode of acculturation that is key to the successful acquisition.

Figure 12 Acculturative model for acquisition implementation (Nahavandi and Malekzadeh, 1988).



Missing in the Haspeslagh and Jemison and Nahavandi and Malekzadeh models, but present in Lee and Colman, is the importance of examining different functional areas. This becomes important later when we narrow our focus to the management information systems function.

The remainder of literature concerning the acquisition process can be divided into two major areas. First is that which addresses human resource issues. Second is literature addressing different integration strategies.

Human Resources Issues

Much has been written about the acquisition process from a human resources perspective. This literature views the acquisition process as a disruptive event, and proposes many different courses of action to minimize its impact on the employees of both firms (e.g., Buono and Bowditch, 1989; Leighton and Tod, 1969; Levinson, 1970; Marks and Mirvis, 1985, 1992; Pritchett, 1985, 1987; Napier, 1989; Schweiger and Denisi, 1991).

A study of particular note examined the impact of communicating with the employees of an acquired firm in a longitudinal field study. The authors found employees who were kept informed of the merger process experienced significantly higher job satisfaction and commitment (Schweiger and Denisi, 1991). While much of the above research makes similar recommendations, this is one of the few comparative studies performed.

Jemison and Sitkin (1986) and Haspeslagh and Jemison (1991) include the decision making process itself as an important factor in the acquisition. This process is examined in Duhaime and Schwenk (1985). Their conceptual discussion proposes that managers of acquiring companies often over-simplify the acquisition process and make decisions on a non-rational basis. Potential biases include reasoning by analogy, illusory control (both before and after the merger), and escalating commitment. After a management team has investigated a potential acquisition, it may be difficult for them to withdraw from the process.

Also worthy of note in the human resources area is the stream of research by Walsh concerning top management turnover in acquisitions (Walsh, 1988, 1989; Walsh and Ellwood, 1991). This research answers the call made by Jemison and Sitkin (1986) to examine specific aspects of the acquisition process. By examining top managers' actions following acquisitions, Walsh was able to identify specific patterns of executive turnover. He found, for example, that assurances of top management retention by the acquiring firm did not change the resulting turnover levels (Walsh, 1989).

Integration Strategies

Several researchers have developed models of integration strategies that corporate managers follow in handling an acquisition. This section provides an overview of several such models. We will apply these models in developing a theory of MIS acquisition strategies in Chapter 3.

Figure 13 Types of acquisition integration approaches (Haspeslagh and Jemison, 1991).

		Need for Strategic Interdependence	
		Low	High
Need for Organizational Autonomy	High	Preservation	Symbiosis
	Low	(holding)	Absorption

The acquisition process model of Haspeslagh and Jemison (1991) was introduced in **Figure 11** above. These authors also identified four different approaches to the integration process. They are based on two factors (see **Figure 13**). The first factor is the *need for strategic interdependence* (as introduced in **Figure 5**). Acquisitions with a low need for strategic

interdependence could benefit from general management capabilities and/or combination benefits. These benefits are less disruptive than those of resource sharing and functional skill transfer. Resource sharing indicates a degree of integration whereby the firms are using the same physical resources. Functional skill transfer indicates at least a temporary, but possibly permanent, transfer of individuals or groups of people. Acquisitions in which these benefits were expected would have a high need for strategic interdependence.

The second factor is the degree to which the acquired firm needs to maintain its independence in order to preserve its strategic capabilities, and is labeled *need for organizational autonomy*. It is described as follows "...one of the paradoxes in acquisitions is the pursuit of capability transfer itself may lead to the destruction of the capability being transferred. Whereas capability transfer requires different degrees of boundary disruption or dissolution, the preservation of capabilities requires boundary protection and, hence, organizational autonomy (p. 142)." In some circumstances, a firm may be acquired because it has different capabilities from the parent. If an entrepreneurial firm is acquired, it may be important to maintain that firm's autonomy to reap the benefits of the acquisition. Acquisitions between firms that had vastly different cultures are considered high on this factor. It is also possible for some areas of a firm to be integrated while others are left autonomous. According to other authors, information systems is frequently an area in which synergies are expected, and may be among the first functional areas to be integrated (Yunker, 1983; Clark, 1991).

In research spanning five years and ten countries, Haspeslagh and Jemison (1991) examined these integration strategies. Acquisitions with the *holding* strategy occur when

the parent firm has no intention of integrating the acquired company or of creating value except through combination benefits or general management skill transfers. The parent company would be merely a "holding" company, and operate the acquired firm at arm's length, even though the firms are similar in function and culture such that there is a low need for organizational autonomy. Haspeslagh and Jemison do not consider this type of acquisition to be strategic in nature (p. 147), and thus did not include this type acquisition in their analysis.

In *preservation* acquisitions, with a high need for autonomy and a low need for interdependence, the focus is to keep the sources of benefits intact. Introducing significant changes to the acquired firm could destroy the very skills being sought. Haspeslagh and Jemison use the metaphor of "nurturing" to describe the relationship between the parent and the acquired firms.

In *absorption* acquisitions, integration involves the complete consolidation of the organizations (although it may take several years to complete this process). Decisive action by the acquiring firm's management is necessary to bring about the interdependence of the firms.

Symbiotic acquisitions represent the most complex challenge to acquirers. With a high need for both autonomy and interdependence, the acquired firm's capabilities must be preserved in a different culture. The organizations will first co-exist, and then become increasingly interdependent.

Figure 14 Acquired firm's modes of acculturation (Adapted from Nahavandi and Malekzadeh, 1988).

		Degree of Relatedness	
		Unrelated	Related
Degree of Multi-culturalism	Multi-cultural	Separation	Integration
	Uni-cultural	Deculturation	Assimilation

(Axes rotated for ease of comparison with other models)

Nahavandi and Malekzadeh (1988) propose a model of acquisition integration approaches based on sociological models of acculturation (see **Figure 14**). The two factors in their framework are the degree of relatedness of the firms and the multiculturalism of the parent firm. In their later book (Nahavandi and Malekzadeh, 1993), their discussion of relatedness assumes that operations of related firms will be integrated, whereas other types of acquisitions will not require the same degree of integration. If the firms are related, they point out that advantages can be gained by the transfer of resources and taking advantage of functional skills present in both firms (pp. 27-29). We believe that this assumption oversimplifies the question of integration. As discussed by Haspeslagh and Jemison (1991), integration does not directly depend on the degree of relatedness of the firms. The Haspeslagh and Jemison factor of *need for strategic interdependence* is a more complex factor, but encompasses the ideas of resource sharing and functional skill transfer present in Nahavandi and Malekzadeh's factor of *degree of relatedness*.

Nahavandi and Malekzadeh's second factor is the *degree of multiculturalism* of the acquiring firm. This is similar to Haspeslagh and Jemison's factor *need for organizational autonomy*, although its perspective is somewhat more narrow. Haspeslagh and Jemison

discuss the acquired firm's need to remain autonomous in order to function efficiently. Nahavandi and Malekzadeh are looking at this from the perspective of the acquiring firm. If it is multicultural,[9] then it could support various autonomous units, each with a high need for organizational autonomy. A unicultural acquiring firm would be less inclined to allow an acquired firm to maintain its autonomy. *Deculturation* results when the acquired firm loses its own culture, but does not connect with that of the parent (Sales and Mirvis, 1984). This integration strategy does not provide benefits to either of the firms, and should be avoided (Nahavandi and Malekzadeh, 1993). Similarly, Haspeslagh and Jemison's fourth quadrant labelled *holding* describes an acquisition in which the firms remain autonomous (even though they do not require organizational autonomy), and there is no expectation of creating value except through financial combinations or possibly the sharing of general management skills (Haspeslagh and Jemison, 1991).

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[9]Nahavandi and Malekzadeh (1993) define *multiculturalism* as "The degree to which an organization values organizational cultural diversity and is willing to tolerate and encourage it. If an organization simply contains many different cultural groups (as many large, diverse organizations do), it can be considered to be a plural organization. If in addition to including several cultures, the organization values this diversity and nurtures and encourages it, it is considered to be multicultural. A multicultural acquirer is likely to consider diversity an asset and consequently allow the acquired firm to retain its own culture and practices (p. 68)."

Clark (1991) also presents four different strategies for integrating acquired firms, although he does not provide factors that distinguish them. The four acquisition approaches are described in **Figure 15**. The *confederation* approach is similar to Haspeslagh and Jemison's strategy of *preservation*. Both firms continue to operate in approximately the same manner as before the acquisition.

Figure 15 Four acquisition types (Clark, 1991).

Type	Approach
Takeover	Acquirer absorbs acquired firm's operations and identity.
Makeover	Acquirer's approach is laid on acquired firm's foundation.
Restrategy	Best from each firm is combined.
Confederation	Each firm is left alone.

The *restrategy* approach is similar to Haspeslagh and Jemison's strategy of *symbiosis*; it involves combining the best of each firm. The *takeover* approach is similar to Haspeslagh and Jemison's *absorption*. Each of these approaches involves the imposition of the acquiring firm's culture, management, and control systems on the acquired firm. Clark's *makeover* approach is not apparent in the typologies presented by Haspeslagh and Jemison or Nahavandi and Malekzadeh.

Shanley (1987) examines acquisitions with the purpose of identifying different management approaches. Four management approaches were identified through a cluster analysis of various actions

Figure 16 Typology of post-acquisition management approaches (Shanley, 1987).

		Change in Task/Authority Structure	
		Low	High
Change in Control and Administration	Low	Autonomy	Decentralized Management
	High	Bureaucratic Control	Centralized Intervention

of the acquiring firm's management. His results also indicate a two-by-two model, shown in **Figure 16**. The *autonomy* cluster indicated a hands-off attitude on the part of the acquiring firm. The target was allowed to maintain its own control and authority structure, similar to the *preservation* approach by Haspeslagh and Jemison. Few management changes were made, and the acquired firm continued to operate as before. The *decentralized management* cluster is characterized by few changes in controls, but many changes in the task/authority structure. This is similar to the *symbiosis* approach by Haspeslagh and Jemison. Changes are made in the acquired firm, but implemented in a selective manner in order to preserve its autonomy. The *centralized intervention* cluster exhibits many changes in both the task/authority structure and the control system. This is similar to the *absorption* approach by Haspeslagh and Jemison. Basically, the acquired firm is being made to look like the parent. The *bureaucratic control* cluster found by Shanley is similar to the *makeover* approach by Clark, but is not apparent in the typologies presented by Haspeslagh and Jemison or Nahavandi and Malekzadeh. It involves the imposition of control systems, but maintains the basic mode of operation in the acquired firm.

With these models in mind, we can draw parallels between the strategies identified. **Figure 17** provides a tabular comparison of the four acquisition integration strategy models by Haspeslagh and Jemison (1991), Nahavandi and Malekzadeh (1988, 1993), Clark (1991), and Shanley (1987). There appears to be a consensus on strategies 1, 2, and 3. These strategies will be used in Chapter 3, along with relevant research in information systems, in building a model of management information system acquisition strategies.

Figure 17 Parallels between various models of acquisition integration strategy.

	Haspeslagh and Jemison (1991)	Nahavandi and Malekzadeh (1988, 1993)	Clark (1991)	Shanley (1987)
1.	Preservation	Separation	Confederation	Autonomy
2.	Symbiosis	Integration	Restrategy	Decentralized Management
3.	Absorption	Assimilation	Takeover	Centralized Intervention
4.	Holding	Deculturation		
5.			Makeover	Bureaucratic Control

Research on Information Systems and Mergers and Acquisitions

Surprisingly little work by MIS researchers can be found on information technology in the context of acquisitions. There are, however, some research areas that are applicable. One important area is research on the strategic alignment of IS. MIS research on acquisitions is mostly practitioner oriented and offers suggestions that could be valuable. In the academic literature, there is some conceptual and theoretical work, and a few case studies have been undertaken.

IS Strategic Alignment

Researchers have long assumed that information systems should be aligned with the business objectives of organizations (Ackoff, 1967). Recent research has investigated this link more closely and has found that IS strategic alignment, defined as the fit existing between business strategy and IS strategy, is important (Chan and Huff, 1993b). Indeed, Chan and Huff found a significant link between the IS strategic alignment and the performance of the firm, both at the IS level and overall business performance. In particular, this link should also be present during the integration phase of an acquisition. The alignment of the overall integration strategy with the integration strategy at the IS level should be present.

Chan and Huff (1993a) defined alignment as the degree of consistency between IS strategy and business strategy. They measured IS strategy by adapting an instrument previously used for business strategy (Venkatraman, 1989b). We will follow the same approach in defining alignment of IS in corporate acquisitions.

Practitioner Oriented

Consultants and MIS practitioners have long realized that MIS can be an important factor in corporate acquisitions. Carlyle (1986) discusses the impact acquisitions often have on MIS departments and the information systems for which they are responsible. He concludes that it is vital for MIS to be included in the negotiation process as early as possible, and suggests that a lack of communication concerning information technology can cause an acquisition to fail. This is especially important given that acquisitions often

put additional demands on staff already heavily burdened with systems support, who may be suffering from lowered morale as a result of the acquisition. According to Carlyle, the consolidation of hardware and communications is relatively easy, especially when the firms are using similar technology. The most expensive and difficult task is consolidating software applications. He quotes one consultant saying:

> *"I've worked on seven corporate mergers--all of them traumatic--and I can tell you that the hardest things to marry are people and old programs. Neither of them travel well, and both resist change" (p. 60).*

Even with these circumstances, Carlyle points out that consolidation of MIS is often a high priority. Synergies are often expected, particularly in horizontal acquisitions between firms in the same industry.

This sentiment is echoed by Ball (1988), who provides a similar view of acquisitions, describing problems and challenges faced in several cases. He suggests that "three years seems to be the realistic time span for an integration project" and that combinations of MIS will be pursued immediately in 70% of acquisitions, and in 90% within one year (p. 13). It is unclear exactly what level of integration this indicates, or what exactly is meant by the "integration project." Another point made by Ball (1988) is that there are often political considerations. The information systems of the acquiring firm are sometimes implemented without unbiased analysis of the benefits to the firms. MIS becomes the subject of turf wars, and managers may advocate systems for political reasons. Loverde (1990) also discusses political considerations, and recommends the acquiring firm avoid the "not-invented-here mindset" which automatically assumes

because they are the purchaser and thus have the upper hand in the deal their systems are superior.

McNurlin (1989) provides a detailed discussion of how MIS executives should deal with acquisitions. Some acquirers have written policies stating that the systems of acquired firms will be converted to standard applications. This is more likely when the acquiring firm makes frequent acquisitions. Over time, such firms develop a cookbook approach to integration as a whole, and MIS integration in particular. McNurlin suggests that there are various strategies for approaching systems integration. The first is to merge applications that are of strategic importance quickly, such as an automated teller system in a bank acquisition. The second is to consolidate hardware, and then convert systems more slowly. The third strategy is to move slowly, spend time carefully evaluating systems, and address them one at a time. In some situations, management will seek to tightly merge the MIS operations. In other circumstances, the companies will keep their operations separate, particularly when the businesses are widely dissimilar.

An AMA study of mergers and acquisitions (Bohl, 1989) found less than half of the respondents obtained full information on the target's computer hardware systems in advance of the merger.[10] Less than one third obtained full information on software systems. The AMA study found that firms experiencing incompatibilities in information systems were much more likely to have problems of loss in worker productivity, loss of market share, lesser profitability, and high employee turnover after the merger took

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[10]Respondents were asked if information was available in full, in part, or not at all in the following IT areas: computer hardware, computer software, data communications, voice communications, report generation policies, and buy-or-lease policies (pp. 18, 20)

place.[11] Results concerning specific types of information systems indicated that "among manufacturing firms, those with incompatibilities in production and distribution systems were *12 times* more likely to report postevent problems [than those firms with compatible production and distribution systems]" (Bohl, 1989, p. 41).

Kubilus (1991a) uses the above AMA survey data as the basis for his recommendations to include MIS in the due diligence review. He also recommends maintaining documentation and manuals on the corporate technical architecture as well as applications, minimizing software customization, and including transfer rights in lease agreements. When developing an integration plan for an acquisition, he advocates placing systems into the categories shown in **Figure 18**.

Figure 18 Priority categories for information systems following an acquisition (Kubilus, 1990).

Systems that must be merged — Systems that must be consolidated because of business requirements.
Systems that should be merged — Systems whose consolidation would be desirable but is not necessary within the first 12 months.
Systems that can remain unchanged — Systems that do not warrant consolidation or do not have a corresponding system with which to merge.
Systems that should be replaced or redesigned — Systems that do not adequately support current or anticipated future business requirements and that can remain unchanged until a new common system is designed or acquired.
Systems that should be eliminated — Systems that are no longer necessary or can be easily replaced by another system.

Calabrese (1991) suggests that there is a need for a defined IS acquisition strategy, and that IS should be involved from the beginning of negotiations. He says:

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[11]Respondents were asked "After the merger/acquisition, in which functions did system incompatibility prove a problem." The list of functions included: general ledger, general administrative, accounts payable/receivable, benefits, payroll, human resources, purchasing, and production/distribution (p. 41). No further definition of systems compatibility is offered.

> *"The alternative of summoning the IS professionals late in the game and telling them to make the systems work is unacceptable in an age when readily accessible information is a premium commodity in business decisions. It's a sure-fire prescription for the integration snafus that have plagued scores of acquisitions, including the horror stories about incompatible systems and computers that can't talk to each other" (p. 26).*

In his call for including MIS executives as full participants in setting acquisition strategy and in the due diligence procedure, he suggests:

> *"An IS acquisition strategy is a plan that plots IS directions as the company changes and grows. It is created by IS management and reviewed periodically with the business development or strategic planning managers of the company. It should be designed to dovetail with the corporate growth plan and overall acquisition strategy. It should become the IS component of the m&a equation well before specific targets are considered for acquisition" (p. 27).*

Calabrese presents examples of three basic IS acquisition strategies that can be followed, although others may be possible. These strategies are summarized in **Figure 19**. In the first strategy, the acquiring firm is integrating the acquired firm's product lines with its own. The IS strategy involves combination of data centers and systems support. Applications such as inventory and purchasing will be integrated, with new systems being developed to accommodate both firms. This is similar to the Haspeslagh and Jemison (1991) *symbiosis* integration strategy. We have labeled this IS acquisition strategy *consolidation*. In the second, the acquired firm is a cash cow, and the primary goal of the acquisition is cash flow. Existing IS systems will be maintained and changes kept to a minimum. We have labeled this IS acquisition strategy *support*. This is similar to the Haspeslagh and Jemison *preservation* integration strategy. In the third, the acquired firm is seen as a growth possibility. The acquiring firm replaces the acquired firm's current technology with state-of-the-art systems to support this level of growth. The acquirer will be involved with the acquired firm in only a limited way. This does not have a close parallel within the Haspeslagh and Jemison typology of acquisition strategies,

Figure 19 Examples of IS acquisition strategies as compared with business characteristics (adapted from Calabrese, 1991).

Business Characteristics			*IS Acquisition Strategy*
Profile	Investment	Technology	
Slow Growth	Limited	Current/Old	*Consolidation*
Mature	Low	Old/Obsolete	*Support*
Growth	High	State-of-the-Art	*Acceleration*

(Labels in right column added to enable discussion of each IS acquisition strategy example.)

but is similar to Clark's (1991) *makeover* integration strategy. We have labeled this IS acquisition strategy *acceleration*.

In addition to discussing the importance of a complete evaluation of a target firm's information systems, Hoffman (1990) describes three approaches to MIS integration following an acquisition. These are summarized in **Figure 20**. These strategies are also similar to those proposed by Haspeslagh and Jemison (1991): *Standardize* is similar to *absorption*; *maintain* is similar to *preservation*; and *integrate* is similar to *symbiosis*.

Figure 20 Three courses of action for integration of systems following an acquisition (Hoffman, 1990).

Standardize on one system.	This makes the most sense when one company is much larger than the other and the relative cost of eliminating one system is negligible.
Maintain two distinct systems.	This option is not likely to bring about more economical operations, but can make sense when functions differ.
Integrate the best of both systems.	When both companies have large, dissimilar systems, this alternative may be the only viable one.

After an acquisition has occurred, Morrison (1993) points out that there may be a window of opportunity for changes. All of the people involved expect some degree of change, and employees may be more receptive to changes in information systems shortly after the acquisition is finalized. If the acquired firm's management does not make changes at that time, changes introduced months later may be met with more resistance.

Conceptual Discussions

Buck-Lew, *et al.* (1992) propose an extension of the Jemison and Sitkin model (1986). This proposal involves adding information technology fit (IT fit) to the process model of corporate acquisitions. This model, with the addition proposed by Buck-Lew, *et al.* (1992) is shown in **Figure 21**. They define IT fit as being best when "the acquiring company will possess the IT strengths to take advantage of attractive IT features of the acquired company" (p. 366).

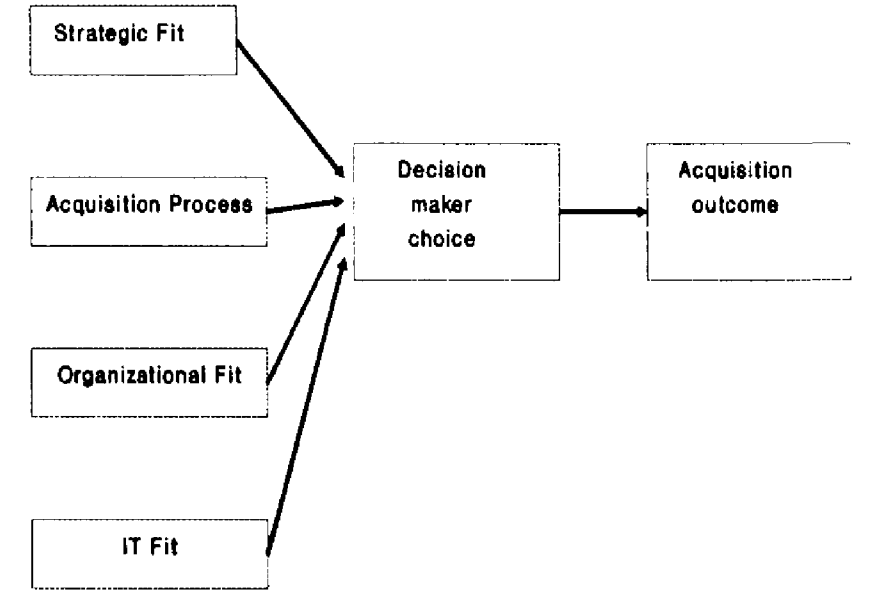


Figure 21 A process perspective on corporate acquisitions (adapted from Jemison and Sitken, 1986 and Buck-Lew *et al.*, 1992).

As we have seen in other management research on acquisitions, the term fit (i.e., organizational fit and strategic fit) is a measure of consistency between two firms on a particular variable. This is not the case with IT fit as described by Buck-Lew, *et al.* (1992). Their concept of fit is along the lines of a gestalt or a profile deviation, as shown previously in **Figure 8** (Venkatraman, 1989). One example given by these authors of a high degree of IT fit is an organization pursuing an aggressive acquisition strategy, which

converts the information systems of acquired firms to its own systems. This indicates the strength of the acquiring firm in information technology, and its ability to expand operations to include new subsidiaries. It does not, however, indicate the existence of a match between the technologies of the firms.

Merali and McKiernan (1993) provide a conceptual discussion of the impact of information systems in acquisition management along with the results of a case study and a limited survey. They apply the Haspeslagh and Jemison model of acquisition integration strategies to information systems, as summarized in **Figure 22**. Their survey found that less than half of firms include an analysis of information systems as part of the due diligence process.

Figure 22 The role of MIS in post-acquisition management (Merali and McKiernan, 1993).

Acquisition Integration Strategy (Haspeslagh and Jemison, 1991)	Role of MIS (Merali and McKiernan, 1993)*
Preservation	Retention of existing systems.
Symbiosis	Most complex challenge for MIS. Certain systems will be centralized or bridges built between systems.
Absorption	Full consolidation of MIS. Focus on lowering of costs. MIS must be consolidated in order to consolidate other operations.

*Adapted from text, pp. 108-109.

Case Studies

Much of the research into MIS in acquisitions is based on case studies. Main and Short (1989) detail the MIS activities which occurred following the Baxter/American Hospital acquisition. In this instance, MIS managers took advantage of the climate of change that pervaded the firms and reevaluated all of the information systems. A separate analysis of the IS organization followed. Managers viewed the acquisition as a unique opportunity for IT planning, and were able to make significant changes.

A recent dissertation by Linder (1989) examines IT in the context of bank mergers. She sought to examine the role that information technology plays in the overall integration process. Data was collected through case studies of two large regional banks that had gone through at least two merger and acquisition transactions. These episodes were used as the unit of analysis. They included both mergers of equals between large regional banks and acquisitions of smaller banks by the regional firms. Several different types of data collection techniques were used, including interviews, observation, and written questionnaires.

The conclusion drawn from this research, in Linder's words, was that "changing I/T functionality was a fulcrum for implementing comprehensive organizational change" (p. 294). One manager expressed it well, saying:

> *"I don't recall ever using [the I/T director] as a sledgehammer deliberately, but the impact is exactly that. The impact of centralizing the data base is that people have to conform to constraints. It is a change trigger. Systems are a way to move everyone to the same procedures. The*

system is the trigger for standards. The systems change, in itself is nothing. It is only a frame for changing policies and procedures" *(p. 285).*

Linder traced many of the problems emerging from integrating the banks' operations to differences in "habits" between the merging firms. While the term "organizational fit" is not used in her discussion, many of the examples given are included in that concept. Her research clearly indicates that IT is a factor in achieving the successful integration of firms.

Summary

Our understanding of MIS in corporate acquisitions, as evidenced by this literature, is somewhat limited. We know that many practitioners and researchers alike consider MIS to be an important but overlooked issue in acquisitions, both during the due diligence review prior to the acquisition closing, and in the integration process that follows. Linder (1989) suggests that IS is used as the means by which change is introduced into the acquired firm. By changing information systems, the parent firm can implement changes in corporate policies, procedures, and information flows. We also have indications that there are different possible approaches to dealing with the information systems of an acquired firm. These MIS acquisition strategies may follow a similar pattern to the general acquisition integration strategies that have been discussed in the management literature.

We also know that the alignment of IS strategy with the business strategy in an organization is important. Applying this concept to acquisitions would indicate a relationship between the MIS acquisition strategy and strategic features of the acquisition.

We do not know, however, what these specific MIS acquisition strategies are, and under what acquisition circumstances each will be appropriate. The following chapter suggests a framework of MIS acquisition strategies, based on the management and MIS literature discussed here.

Chapter 3 - THEORETICAL FRAMEWORK

Introduction

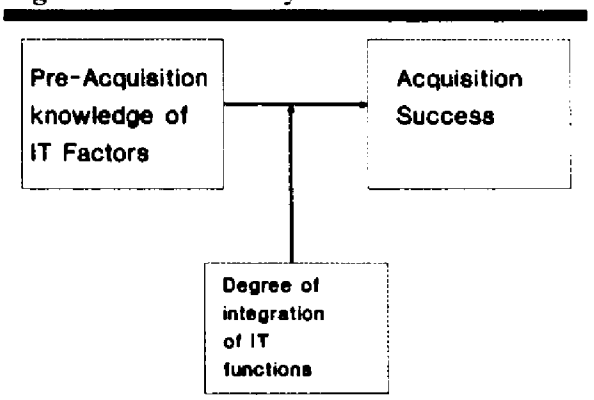
This research project examines the role of management information systems in corporate acquisitions. The first step in this research was to conduct a series of interviews with MIS managers who had gone through multiple acquisitions. The researcher sought to identify issues addressed and approaches to the integration of information systems. Two large, Fortune 500-type firms were contacted and agreed to participate in this phase of the project. These firms are referred to as Parent Firm X and Parent Firm Y. Interviews were conducted with executives from both firms during the spring and summer of 1994. Detailed case reports can be found in Appendices A and B.

Overview

Because the focus of this study has changed from that first presented to the case study participants, we believe a brief discussion of this process will be helpful to understand this research. The initial focus of this study was to identify factors which contribute to the success of acquisitions, and determine whether knowledge of IT factors early in the acquisition process could increase the likelihood of success.

During interviews, a preliminary model, shown in **Figure 23**, was proposed. It suggested that knowledge of IT factors may contribute to the success of the IT function in the resultant firm, as well as the overall success of the acquisition. Questions were asked about various acquisitions that had been made, the state of the acquired firm's IT prior to the acquisition, and how IT operations were affected by the acquisition.

Figure 23 Preliminary model.



In the course of this research, it quickly became apparent that the scope of this project needed to be significantly changed. Linking the knowledge of information systems gained in the due diligence process to the success of the acquisition proved to be difficult. Through the interviews, it became apparent that many events occur after the due diligence process that can have a profound influence on the subsequent success of the acquisition.

The focus of this dissertation was subsequently changed to identifying MIS acquisition strategies. This effort is primarily descriptive in nature. These strategies consist of actions taken by managers of the acquiring firm to achieve strategic capability transfer in the specific area of management information systems. This dissertation will also examine various features of the acquisitions adopting these MIS acquisition strategies. Are there characteristics under which a company is more likely to adopt a particular MIS acquisition strategy? Again, the study is primarily descriptive, but hopes to build toward a normative model of MIS acquisition strategies.

The remainder of this chapter presents the framework for this study. It builds on theoretical work from strategic management as well as research in MIS, as presented in Chapter 2. We then develop a set of propositions that detail the different approaches expected in the management of information systems after an acquisition.

Acquisition Integration Models

The prior review of various models of acquisition integration strategies suggests the parallel findings illustrated in **Figure 24**. Each column represents a model of acquisition integration strategies. Each row is a single strategy, with those strategies we find to be similar in the same row. This comparison includes four models from management research (shown earlier in **Figure 17**) and two from MIS (shown earlier in

Figure 24 Parallels between various acquisition integration models.

	Haspeslagh and Jemison (1991)	Nahavandi and Malekzadeh (1988, 1993)	Clark (1991)	Shanley (1987)	Calabrese (1991)	Hoffman (1990)	*Proposed Model*
1	Preservation	Separation	Confeder-ation	Autonomy	Support	Maintain	*Maintenance*
2	Symbiosis	Integration	Restrategy	Decentralized Management	Consoli-dation	Integrate	*Synthesis*
3	Absorption	Assimilation	Takeover	Centralized Intervention		Standardize	*Replacement*
4	Holding	Deculturation					
5			Makeover	Bureaucratic Control	Acceler-ation		
	←-----Management Literature-----→				←-MIS Literature-→		

Figure 19 and **Figure 20**). The final column is a preview of the model of MIS acquisition strategies we propose in the following section. These models of acquisition integration strategies could be used to examine management approaches for various functions in a firm. They could be applied to management information systems, production, or marketing. They could also be applied to different business units.

The focus of this dissertation is to apply these models to MIS, resulting in a model of MIS acquisition strategies. To examine MIS acquisition strategies, it is necessary to determine how these general management strategies would apply. As a starting place, we examine the first three strategies in **Figure 24** that are present in five of the six models. The fourth strategy is either undesirable and to be avoided (see Nahavandi and Malekzadeh, 1993) or was not found in several years of research (see Haspeslagh and Jemison, 1991). The last strategy does not fit into the management models of Haspeslagh and Jemison and Nahavandi and Malekzadeh. Its relationship to the other strategies is not known. Its presence in the Clark, Shanley, and Calabrese models does indicate, however, that it may emerge in our analysis. For these reasons, we choose to focus on the first three strategies in **Figure 24** as they relate to management information systems. However, our research design will allow for the possibility of additional MIS acquisition strategies.

A Model of MIS Acquisition Strategies

Based on the prior work of Haspeslagh and Jemison (see **Figure 13**), we propose that an MIS acquisition strategy is contingent on two dimensions, the *synergies from MIS* and the *capabilities of information systems in the acquired firm.* This model is shown in **Figure 25**.

Figure 25 Model of MIS acquisition strategies.

		Synergies from MIS	
		Low	High
Capabilities of Information Systems in the Acquired Firm	High	1. Maintenance	2. Synthesis
	Low	(Upgrade)	3. Replacement

The first dimension, *synergies from MIS*, refers to the extent to which the acquiring firm expects to be able to create value through combining the information systems of the two firms. In some instances, the acquired firm expects a large monetary savings. In other situations, this expectation is much lower. Haspeslagh and Jemison (1991) provide a continuum of the sources of value creation which was shown in **Figure 5**. This continuum ranges from *combination benefits* (low) to *resource sharing* (high), and can be applied to MIS.

The second dimension, *capabilities of information systems in the acquired firm*, is again from the acquiring firm's perspective. If the acquiring firm perceives that the acquired firm is making effective use of information systems, this dimension would be high. If the perception is that the acquired firm is not using information systems effectively, it would mean a low rating on this dimension.

Characteristics of Each MIS Acquisition Strategy

In order to operationalize the role of information systems in corporate acquisitions, we need a framework of what they do in organizations. According to Henderson and Venkatraman (1992), this consists of three roles. These are administrative, operational, and competitive. Administrative information systems automate accounting and control functions such as payroll, accounts receivable, and accounts payable. Operational information systems are an extension of administrative systems, but differ in that they automate the entire business process. Competitive information systems are somewhat different. This type of application attempts to leverage technology to gain competitive advantage in the marketplace. These systems may influence the structure of the market or reach beyond the boundaries of the organization. Other authors call this type of system a *strategic* information system (Martin, *et al.*, 1994; Kettinger, *et al.*, 1994). We are primarily interested in the administrative and operational roles of information systems.

MIS managers following a strategy similar to overall integration strategy 1 (*preservation*) in **Figure 24** would be likely to keep existing information systems in their current forms. The *capabilities of information systems in the acquired firm* would be high, and the *synergies from MIS* would be low. If any integration were to occur, it would be minimal, and only at the administrative level, consisting of financial reporting systems. Value creation would be sought from combination benefits such as using corporate purchasing power for hardware and/or software, and general management skill transfer may occur. There would not be extensive sharing of information systems resources, such as combining of hardware. The acquiring firm would not experience

significant savings from information systems. We have labeled this MIS acquisition strategy *maintenance* (see **Figure 25**).

MIS managers following a strategy similar to overall strategy 2 (*symbiosis*) in **Figure 24** would seek to use the best of each firm's information systems and combine them. Both the *capabilities of information systems in the acquired firm* and the *synergies from MIS* would be high. Analysis would be performed to determine if existing administrative systems were appropriate. If the acquired firm was converted to the acquiring firm's administrative systems, appropriate changes would be made to accommodate the acquired firm. A similar evaluative process would be followed with operational information systems. New, integrated systems may be developed at the operational level. Significant synergies would be sought through resource sharing and functional skill transfers. Teams of individuals from both organizations would be actively involved in identifying possible savings. This strategy presents the most complex challenge for MIS management (Merali and McKiernan, 1993). We have labeled this MIS acquisition strategy *synthesis* (see **Figure 25**).

MIS managers following a strategy similar to overall strategy 3 (*absorption*) would seek to replace the acquired firm's information systems with its own. The *capabilities of information systems in the acquired firm* would be low, and the *synergies from MIS* would be high. Hardware would be combined and the acquired firm would be converted to the parent's information systems at the administrative and operational levels. Changes to operational systems in order to accommodate the acquired firm would be

minimal. Changes to administrative systems would be even less likely. We have labeled this MIS acquisition strategy *replacement* (see **Figure 25**).

The fourth cell would occur when there were low *capabilities of information systems in the acquired firm* and low *synergies from MIS*. This situation is similar to Haspeslagh and Jemison's (1991) *holding* strategy. If this situation were to occur, the actions taken would be similar to those in the *maintenance* strategy, but competitive systems would not be under development by either firm, because neither firm is using information systems for competitive advantage. If they were using MIS for competitive advantage, they would experience synergies in MIS as a result of the acquisition, which would put them in the *absorption* strategy. Systems would continue to be slowly upgraded, as in the past. As in the Haspeslagh and Jemison analysis, we do not expect to encounter this strategy, but concede that it may exist. These MIS acquisition strategies, and the actions expected in each, are summarized in **Figure 26**.

Figure 26 Hypothesized characteristics of MIS acquisition strategies.

MIS Acquisition Strategy	Synergies from MIS		Capabilities of Information Systems in the Acquired Firm		Role of Information Systems	
	Low (Combination benefits and General management skill transfers)	High (Functional skill transfers and Resource sharing)	Low	High	Administrative	Operational
1. Maintenance	Yes	No	No	Yes	Continue to run existing systems. Minimal integration of administrative systems possible.	Continue to run existing systems.
2. Synthesis	No	Yes	No	Yes	Evaluate existing systems and implement common system.	Evaluate existing systems. Development of new operational systems that will accommodate needs of both firms likely.
3. Replacement	No	Yes	Yes	No	Implement acquiring firm's with minimal changes	Implement acquiring firm's systems. Some changes possible to accommodate acquired firm.

These relationships can also be expressed in the form of propositions, as follows.

Proposition 1. *Firms making acquisitions will follow one of three basic strategies when addressing the management information systems function in the acquired firm.*

Proposition 1a. *When value creation is expected from combination benefits and or general management skill transfers only, the acquiring firm will seek to* ***maintain*** *the acquired firm's existing information systems. This will occur when the synergies or monetary savings from information systems are low and the capabilities of information systems in the acquired firm are moderate to high.*

Proposition 1b. *When value creation is expected from resource sharing and/or functional skill transfer (both to and from the acquired firm), the acquiring firm will seek to* ***synthesize*** *the information systems of both firms. This will occur when the synergies or monetary savings from information systems are high and the capabilities of information systems in the acquired firm are moderate to high.*

Proposition 1c. *When value creation is expected from resource sharing and/or functional skill transfer (from the parent to the acquired firm) the acquiring firm will seek to* ***replace*** *the existing information systems in the acquired firm with its own systems. This will occur when the synergies or monetary savings from information systems*

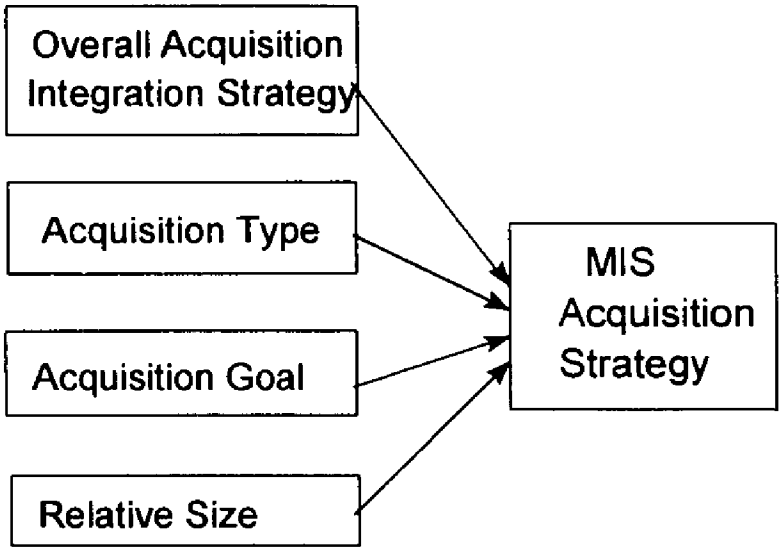
are high and the capabilities of information systems in the acquired firm are low.

The testing of Proposition 1 will provide an answer to our first research question (see page 5).

Fit between MIS Acquisition Strategy and General Acquisition Features

Haspeslagh and Jemison (1991) note that the need for organizational autonomy may be widespread or it may exist in fairly isolated areas of the acquired organization. Likewise, value creation through the sharing of resources or functional skills may not be possible in all areas. This indicates that the same integration strategy need not be adopted in each segment of the acquiring and acquired firms. This strategy may vary from one functional area to another. The overall acquisition integration strategy could thus be described as the summation of the strategies in different firm segments. In looking at the areas individually, the integration strategy may or may not be congruent with the overall integration strategy.

Figure 27 Model of fit between MIS acquisition strategies and acquisition characteristics.



Based on Merali and McKiernan (1993) and Linder (1989), we theorize that a successful acquirer will be more likely to adopt an MIS acquisition strategy that is congruent with various general features of the acquisition. This is also supported by the research on IS alignment as presented in Chan and Huff (1993a and 1993b). If the consistency of IS strategy with business strategy is important in the everyday operations of a business, as Chan and Huff conclude, this can be logically extended to what occurs following a corporate acquisition. The MIS acquisition strategy should be consistent with the overall integration strategy as well as other overall features of the acquisition.

Some of the features of acquisitions that have been studied and were discussed earlier include the overall acquisition integration strategy, the acquisition type, and the acquisition goals. Research has also shown that the relative size of the acquisition

(Kitching, 1967; Hunt, 1990) can influence the relationship between the acquiring and target firms. These relationships are summarized in **Figure 27** and are discussed below. The testing of sets of propositions associated with these four acquisition features will provide an answer to our second research question (see page 5).

The presence of a good fit between the MIS acquisition strategies and these general features of the acquisition will be evidenced by higher incidence of matching values between these variables. This uses the concept of "matching" in measuring fit.

Overall Acquisition Integration Strategy

The MIS acquisition strategies, as described, could therefore either be congruent with the overall acquisition integration strategy, thus having a good fit and a positive contribution, have a marginal fit with a neutral contribution, or have a poor fit with a negative effect. The possible relationships of these strategies are illustrated in **Figure 28**. This concept is similar to the analysis by Shelton (1988) which examined strategic fit at the product line level. This suggests:

Figure 28 Relationships between MIS acquisition strategies and overall acquisition integration strategies.

MIS Acquisition Strategies	Overall Acquisition Integration Strategies		
	Preservation	Symbiosis	Absorption
Maintenance	**Good Fit**	Marginal Fit	Poor Fit
Synthesis	Marginal Fit	**Good Fit**	Marginal Fit
Replacement	Poor Fit	Marginal Fit	**Good Fit**

Proposition 2a: *In the case of acquisitions following a "preservation" overall acquisition integration strategy, MIS managers will be more likely to follow a "maintenance" MIS acquisition strategy.*

Proposition 2b: *In the case of acquisitions following a "symbiosis" overall acquisition integration strategy, MIS managers will be more likely to follow a "synthesis" MIS acquisition strategy.*

Proposition 2c: *In the case of acquisitions following an "absorption" overall acquisition integration strategy, MIS managers will be more likely to follow a "replacement" MIS acquisition strategy.*

This proposition can be illustrated by considering a parent firm that is following a overall acquisition integration strategy of *preservation.* The MIS managers of the parent would be unlikely to go into the acquired firm and proceed to replace the information systems with those of the parent firm (following a *replacement* MIS acquisition strategy). This would have a detrimental effect on the integration process. This parent firm may find that some changes are necessary in MIS and choose a *synthesis* MIS acquisition strategy. This would be somewhat inconsistent with the overall acquisition strategy, but not diametrically opposed to it, and would result in a "marginal fit." However, the parent firm would be most likely to treat MIS in the same manner as the overall firm and follow a *maintenance* MIS acquisition strategy.

Similarly, we can consider a parent firm following an overall acquisition integration strategy of *absorption.* This firm would be most likely to follow a *replacement* MIS acquisition strategy. The *absorption* overall acquisition integration strategy involves the

parent firm imposing a significant amount of change on the way the target firm operates. At the MIS level, this same approach would most likely be followed. This approach is reflected in the *replacement* MIS acquisition strategy. The parent firm would not be likely to follow a *maintenance* MIS acquisition strategy, not making changes to the target's information systems. This would be a "poor fit" with the overall approach to the acquisition. A "marginal fit" may result if the parent firm finds that some changes are necessary to the target firm's information systems, and thus follow a *synthesis* MIS acquisition strategy, but this choice would not be as likely as *replacement*.

The parent firm following an overall acquisition integration strategy of *symbiosis* is trying to sustain and integrate the best of each firm. This overall acquisition integration strategy is the most difficult. The mostly likely choice of MIS acquisition strategy would be *synthesis*, which would be consistent with the approach taken at the overall level, resulting in a "good fit." It is possible that another MIS acquisition strategy would be chosen, resulting in a "marginal fit."

Acquisition Type

The second type of fit possible is between the MIS acquisition strategy and the type of acquisition. If the firms are in different lines of business, as in unrelated and

Figure 29 Fit between MIS acquisition strategy and acquisition type.

MIS Acquisition Strategy	Acquisition Type				
	Unrelated	Vertical	Product Extension	Market Extension	Horizontal
Maintenance	**Good Fit**	**Good Fit**	Marginal Fit	Poor Fit	Poor Fit
Synthesis	Marginal Fit	Marginal Fit	**Good Fit**	Marginal Fit	Marginal Fit
Replacement	Poor Fit	Poor Fit	Marginal Fit	**Good Fit**	**Good Fit**

vertical acquisitions, the firms would be more likely to pursue a *maintenance* MIS acquisition strategy. In unrelated and vertical acquisitions, it is unlikely that the information systems in use by the parent firm would be appropriate for the target firm. This would suggest a "poor fit" between these types of acquisitions and the *replacement* MIS acquisition strategy. In unrelated and vertical acquisitions, a *synthesis* MIS acquisition strategy would neither be as likely as *maintenance* nor as unlikely as *replacement*, indicating a "marginal fit."

In acquisitions where there is some degree of similarity, as in product extension acquisitions, it is most likely that a *synthesis* MIS acquisition strategy would be pursued,

indicating a "good fit." Either a *maintenance* or *replacement* MIS acquisition strategy would be a "marginal fit" with a product extension acquisition because the degree of integration of MIS may vary widely in this type of acquisition.

In acquisitions where the firms are in a similar business, as in a horizontal or market extension acquisition, the parent firm would be most likely to follow a *replacement* MIS acquisition strategy, indicating a "good fit." It is likely that the information systems in use by the parent firm would be appropriate for the target, and the parent firm would impose its information systems on the target firm. Conversely, it would be unlikely in these types of acquisitions that the parent firm would leave the information systems in the target firm alone, suggesting a "poor fit" with the *maintenance* MIS acquisition strategy.

This suggests:

Proposition 3a: *In the case of "unrelated" and "vertical" acquisitions, MIS managers will be more likely to follow a "maintenance" MIS acquisition strategy.*

Proposition 3b: *In the case of "product extension" acquisitions, MIS managers will be more likely to follow a "synthesis" MIS acquisition strategy.*

Proposition 3c: *In the case of "market extension" and "horizontal" acquisitions, MIS managers will be more likely to follow a "replacement" MIS acquisition strategy.*

Acquisition Goals

Additionally, we expect there will be a fit between the strategic goals of the acquisition and the MIS acquisition strategy. Firms that are following a strategy of *domain exploration* will not have an indepth knowledge of the business of the target company. Neither will the information systems be similar to those they currently use. Therefore, the most likely MIS acquisition strategy in this situation will be *maintenance*. Firms that are extending their domain will have some knowledge of the acquired firm, but will be attempting to capitalize on increasing the knowledge of that business. In this situation, the appropriate MIS acquisition strategy will be *synthesis*. Firms that are strengthening existing domains will, for similar reasons, be more likely to follow the *replacement* MIS acquisition strategy. These relationships are illustrated in **Figure 30**, and suggest the following propositions:

Figure 30 Fit between MIS acquisition strategy and acquisition goals.

MIS Acquisition Strategies	Acquisition Goals		
	Domain Exploring	Domain Extending	Domain Strengthening
Maintenance	**Good Fit**	Marginal Fit	Poor Fit
Synthesis	Marginal Fit	**Good Fit**	Marginal Fit
Replacement	Poor Fit	Marginal Fit	**Good Fit**

Proposition 4a: *In the case of acquisitions with a strategic goal of "domain-exploring", MIS managers will be more likely to follow a "maintenance" MIS acquisition strategy.*

Proposition 4b: *In the case of acquisitions with a strategic goal of "domain-extending", MIS managers will be more likely to follow a "synthesis" MIS acquisition strategy.*

Proposition 4c: *In the case of acquisitions with a strategic goal of "domain-strengthening", MIS managers will be more likely to follow a "replacement" MIS acquisition strategy.*

Relative Size

The relative size of the firms will have an impact on the choice of MIS acquisition strategy. If the acquired firm is very small in comparison to the parent firm, it is unlikely that the MIS acquisition strategy of *synthesis* will be followed. Because of the disparate size, the parent firm will either allow the acquired firm to continue using its existing systems, following the *maintenance* strategy, or it will impose its systems on the acquired firm, following the *replacement* strategy.

Proposition 5: *In acquisitions in which the acquired firm is small relative to the parent, MIS managers will be unlikely to follow the MIS acquisition strategy of "synthesis."*

Findings from Case Studies

The two case studies discussed earlier provide face validity for the proposed model. Three acquisitions by Parent Firm X and six acquisitions by Parent Firm Y were examined. Neither firm had a single approach to making acquisitions, but tailored its

actions to the target firm. These case studies were conducted concurrently with the development of the model presented earlier. They undoubtedly impacted the formation of the model.

Parent Firm X

The following tables summarize the findings from Parent Firm X. Additional detail is available in Appendix A. Parent Firm X definitely followed different courses of action in integrating the MIS function following these acquisitions. These can be classified according to the MIS acquisition strategies described earlier as *maintenance, synthesis,* and *replacement.* These choices agree with suggestions made in Proposition 1.

Figure 31 MIS acquisition strategies from case study - Parent Firm X.

Acquisition	MIS Acquisition Strategy	Reasons
Acq. X1	Replacement	All systems have been converted over to Parent Firm X systems. High synergies were realized from sharing of resources and functional skill transfers.
Acq. X2	Synthesis	Financial systems were integrated first. Some operational systems followed, with significant changes made to systems in development to accommodate needs of target firm. Some synergies have been realized. Capabilities of MIS prior to the acquisition were high relative to the brokerage industry, but lower than those to which parent firm was accustomed.
Acq. X3	Maintenance	Existing systems have been maintained. Acquisition X3 was perceived as having highly capable information systems. Synergies were low.

Following is a chart (**Figure 32**) summarizing the MIS acquisition strategy and various acquisition features. Acquisition X2 supports Proposition 2b. In this situation, an MIS acquisition strategy of synthesis was followed when the overall integration strategy

was symbiosis. Acquisition X1 and X3 do not fall into the "good fit" classification as described in **Figure 28** and Proposition 2. They do, however, fall into the "marginal fit" area, and thus do not contradict our theory. This data was gathered in a semi-structured interview early in the case study process. For these reasons, we will retain Proposition 2, but concede that this relationship may not be as strong as others.

Figure 32 Summary of case study results - Parent Firm X.

Acquisition	MIS Acquisition Strategy	Overall Integration Strategy	Acquisition Type	Acquisition Goals	Level of S/W Integration *(1 to 7 scale)*
Acq. X1	Replacement	Symbiosis	Market extension	Domain strengthening	7
Acq. X2	Synthesis	Symbiosis	Product extension	Domain exploring and domain strengthening	3.5
Acq. X3	Maintenance	Symbiosis	Unrelated	Domain exploring and domain strengthening	1

When making a market extension acquisition (Acquisition X1), Parent Firm X followed an MIS acquisition strategy of *replacement*. When making a product extension acquisition (Acquisition X2), the MIS acquisition strategy was *synthesis*. When making an unrelated acquisition (Acquisition X3), the existing systems were maintained, following a *maintenance* MIS acquisition strategy. These choices agree with suggestions made in Proposition 3.

In Acquisition X1, the strategic goal was *domain strengthening* and the MIS acquisition strategy was *replacement*. This provides support for Proposition 4c. At the time these data were collected, the researcher did not specify that the subject choose one

acquisition goal as dominant, and allowed multiple answers. Acquisitions X2 and X3 thus have two goals specified, and cannot be used in support of Proposition 4.

We also collected data concerning the level of software integration for each acquisition. These findings support, in a general sense, the descriptions of each of the MIS acquisition strategies. When following a *replacement* MIS acquisition strategy, the software was totally integrated. At the other end of the spectrum, in a *maintenance* MIS acquisition strategy, software was not integrated. In a *synthesis* MIS acquisition strategy software integration was at an intermediate level.

Parent Firm Y

Parent firm Y was the first case study performed by the researcher. At that stage, the theory was in a very preliminary form. The amount of data collected directly applicable to this theory was thus somewhat limited. Six acquisitions made by Parent Firm Y over the previous six years were discussed with MIS executives. The following table (**Figure 33**) shows the MIS acquisition strategy of each of these transactions.

This case study provides support for Proposition 1 in that each of the different courses of action followed in integrating MIS following the acquisition can be categorized as *maintenance*, *synthesis*, or *replacement*. Acquisition Y6 provides support for Proposition 3a. It was a vertical acquisition and the MIS acquisition strategy was *maintenance*. Acquisitions Y1 and Y5 provide support for Proposition 3b. Each was a product extension acquisition, and the MIS acquisition strategy was *synthesis*.

Acquisitions Y2, Y3, and Y4 support Proposition 3c. In these three horizontal acquisitions, the MIS acquisition strategy was *replacement.*

Parent Firm Y also provides support for Proposition 5 in that Acquisition Y6, which was quite small relative to the others, followed a *Maintenance* MIS acquisition strategy.

Figure 33 Summary of case study results - Parent Firm Y.

Acquisition	Year	Type	MIS Acquisition Strategy	Reasons
Acquisition Y1	1987	Product Extension	Synthesis	Separate data center maintained in a distant city to handle the annuity business.
Acquisition Y2	1990	Horizontal	Replacement	All operations moved to headquarters. New people trained to operate these systems.
Acquisition Y3	1990	Horizontal	Replacement	All operations moved to headquarters. Since Acquisition Y3 was geographically located within 20 miles of headquarters, many employees were retained.
Acquisition Y4	1991	Horizontal	Replacement	All operations moved to headquarters.
Acquisition Y5	1992	Product Extension	Synthesis	Data center moved to headquarters. Applications group maintained in offices in Acquisition Y5's city. This was considered necessary because of the different type of business focus (health). In addition, Acquisition Y5 was considered to be doing an effective job with data processing.
Acquisition Y6	1993	Vertical	Maintenance	Acquisition Y6 systems are maintained separately. They are LAN based. Financial reporting is integrated, but operational systems are totally separate.

Summary

The following chart summarizes the hypothesized "good fits" between the MIS acquisition strategies and general acquisition features.

Figure 34 Good fits between MIS acquisition strategies and general acquisition features.

	MIS Acquisition Strategies		
	Maintenance	Synthesis	Replacement
Overall Acquisition Integration Strategy	Preservation	Symbiosis	Absorption
Acquisition Type	Unrelated Vertical	Product Extension	Market Extension Horizontal
Acquisition Goals	Domain Exploring	Domain Extending	Domain Strengthening

Case studies conducted on two parent firms and covering nine acquisitions provided initial support for this theoretical framework. The next step in this study is to test these relationships in a larger number of acquisitions.

Chapter 4 - METHODOLOGY

Introduction

This chapter describes the methodology that will be followed in the main data collection of this study. We will discuss the population to be used, the survey instrument, classification methods, and the testing of our theoretical model. Detailed hypotheses are also presented.

Population

The population for the survey will be acquisitions made in 1992 that were reported in quarterly issues of *Mergers & Acquisitions*. This publicly available list includes all merger and acquisition transactions reported in public sources valued at $5 million or more. It reports the names of both firms, the cities in which they were located, the type of transaction, and a short description. In most cases, firm revenues or sales are also reported. This list was the starting point for building a database about this population.

The population was limited to transactions reported as "acquisitions" in which U.S.-based firms acquired other U.S.-based firms. Transactions reported as "acquired unit", "acquired remaining interest," "acquired majority interest," "acquired minority

interest," or "merger" were not included. Hostile takeovers were also excluded. The number of transactions meeting these requirements is approximately 1100.

The two to three year time lag was chosen in accordance with Haspeslagh and Jemison's recommendation that data be collected two to five years following the transaction (1991, p. 284). This time lag also seems appropriate based on Ball's observation that approximately three years are required to complete integration of information systems following an acquisition (1988). At the same time, we determined that the lag time should be as short as possible--consistent with the Haspeslagh and Jemison (1991) and Ball (1988) suggestions--because of the high turnover frequently found among MIS executives (King, 1993).

Once these transactions had been entered into a database, addresses and phone numbers of the parent firms were determined. Most were located through *Standard & Poor's* database. If unsuccessful there, we sought out the *Directory of Corporate Affiliations*, the *Million Dollar Directory*, and *Nexus* files. In this process, several more transactions were eliminated from the sample. These included transactions in which the acquiring firm was reported as "private investors" or "multiple acquirers" and for which no other identifying data was reported. A few transactions were also found to involve non-U.S. firms and were eliminated. Additionally, if the parent firm in the 1992 transaction had subsequently been acquired by yet another firm, the transaction was eliminated. These steps resulted in eliminating approximately 15-20% of the transactions.

This analysis is from the point of view of the parent firm, but the unit of analysis is actually the acquisition. In many instances, a company had made multiple acquisitions in

1992. However, we felt that asking these companies to complete questionnaires for each acquisition would negatively impact the response rate. Therefore, for firms that made multiple acquisitions, we randomly selected one particular acquisition made in 1992 for inclusion in the study. This further reduced the sample size by approximately 20%, leaving the size of the population at 751.

Before mailing the survey, telephone contacts were made with the companies in the population to identify a top MIS executive to which the survey could be directed. These contacts were made by the principal investigator or by a trained research assistant.[12] A copy of the script used during these contacts is in Appendix C. Successful contacts were made with 583 firms, which became the target population. This exceeded our early estimate of 400 to 500 firms, from which a response rate of 20% was expected to result in approximately 80 to 100 survey responses.[13] At least one follow-up contact was planned with non-respondents.

Survey

Because this study is exploratory in nature, the survey to be used was developed by the researcher. It is based heavily on the work of Haspeslagh and Jemison. Because their research was case study based, with semi-structured interviews, there were no survey

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[12]Special thanks to Ruth Smith, Marit Elvsaas, Lyn Adair and Rachel Wilson for their help in this endeavor.

[13]This estimate was based upon experience in similar studies. These are: Krug (1993), 23.9%; Shanley (1987), 35%; Schmidt (1992), 29.5%; Merali and McKiernan (1993), 8%. As indicated, however, the response rate may vary widely.

instruments available. An initial draft of the survey was developed and reviewed with a panel of academic experts. Concurrently, it was discussed with executives who had participated in the case studies. Several revisions were made.

The next stage of survey validation involved a detailed review with several industry executives who had not participated in the case studies. This review resulted in additional revisions to the survey.

The survey consists of the following sections, measuring the indicated constructs.

A	**Background information of the individual respondent**	4 questions
B	**Administrative information systems**	
	12 questions to identify actions taken by the parent firm	5 point Likert-type scale
	1 question to indicate the length of time required to reach the desired level of integration	7 point timeline
C	**Operational information systems**	
	Same questions as asked regarding administrative information systems.	
D	**Impact of the acquisition**	
	Capabilities of MIS in the acquired firm	3 questions 5 point Likert-type scale
	Synergies from MIS	3 questions 5 point Likert-type scale
	MIS success (for later analysis)	3 questions 5 point Likert-type scale
	Overall acquisition success (for later analysis)	2 questions 5 point Likert-type scale
	Combination benefits	3 questions 5 point Likert-type scale

	General management skill transfer	3 questions 5 point Likert-type scale
	Functional skill transfer	3 questions 5 point Likert-type scale
	Resource sharing	3 questions 5 point Likert-type scale
	Number of other acquisitions in previous 3 years by the parent firm	1 question 4 ranges from none to 6 or more
	Was this acquisition in need of a turnaround	1 question Yes / No
E	**General acquisition features**	
	Overall integration strategy	1 question Check 1 of 3
	Acquisition goal	1 question Check 1 of 3
	Acquisition type	1 question Check 1 of 5
F	**Firm size**	2 questions $ million revenue of each firm
G	**Comments**	open-ended

A copy of the survey can be found in Appendix D.

Classification

The first step in data analysis is to classify each response into the three MIS acquisition strategies that have been defined earlier. These strategies are defined by the actions of MIS managers following the acquisition. These questions are in sections B and C of the survey, with responses based on a five point Likert-type scale. The chart in

Figure 35 shows the expected responses to these questions. Based on these questions, each response will be classified into a particular MIS acquisition strategy. This chart also identifies key questions, which are discussed below.

Figure 35 Expected responses for MIS acquisition strategies.

	Key Questions	Maintenance	Synthesis	Replacement
M	To what degree did the parent firm want to integrate the <administrative/operational> information systems of the parent and the target firm?	Low	High	High
R	The target firm converted to <administrative/operational> information systems that the parent firm was using.	Low	Low	High
	The target firm adapted its <administrative/operational> information systems to meet the parent firm's specifications.	High	Mid	Low
	The parent firm adapted its <administrative/operational> information systems to meet the needs of the target firm.	Low	High	Mid
	The parent firm developed new <administrative/operational> systems that were then implemented for everyone.	Low	High	Mid
S	In a joint development project, MIS personnel from the parent and target firms developed new <administrative/operational> information systems that were then implemented throughout the firm.	Low	High	Low
R	It was important for the target firm to change to the parent firm's <administrative/operational> information systems as soon as possible.	Low	Low	High
S	We evaluated which <administrative/operational> information systems were best for the target firm.	Low	High	Low
R	The parent firm has imposed its <administrative/operational> information systems on the target firm.	Low	Low	High
S	Both the target and parent firms were represented among the team members who evaluated the <administrative/operational> information systems.	Low	High	Low
M	After the acquisition, the parent firm did not make significant changes to the <administrative/operational> information systems in the target firm.	High	Low	Low
M	After the acquisition, the hardware which runs the <administrative/operational> information systems for the parent and the target firms remained separate.	High	Low	Low
	After the acquisition, the <administrative/operational> information systems in the target firm were outsourced to a third party	Low	Low	Low
	After the acquisition, new <administrative/operational> information systems were purchased and implemented for the target firm.	Low	Mid	Low

Legend: M = Key question for *maintenance* strategy. S=Key question for *synthesis* strategy. R=Key question for *replacement* strategy.

The classification process involves two stages. For each MIS acquisition strategy, the researcher identified three questions in sections B (administrative information systems) and C (operational information systems) that differentiate one particular strategy from the other two.

For the *maintenance* strategy, the key questions are:

1. To what degree did the parent firm want to integrate the <administrative/operational> information systems of the parent and the target firm? *(reverse scored)*
2. After the acquisition, the parent firm did not make significant changes to the <administrative/operational> information systems in the target firm.
3. After the acquisition, the hardware which runs the <administrative/operational> information systems for the parent and the target firms remained separate.

For each of these questions, we expected a high response (low for #1) if the acquisition followed a *maintenance* MIS acquisition strategy. For the MIS acquisition strategies of *synthesis* or *replacement,* we expected a low response (high for #1).

For the *synthesis* strategy, the key questions are:

1. Both the target and parent firms were represented among the team members who evaluated the <administrative/operational> information systems.
2. We evaluated which <administrative/operational> information systems were best for the target firm.

3. In a joint development project, MIS personnel from the parent and target firms developed new <administrative/operational> information systems that were then implemented throughout the firm.

For each of these questions, we expected a high response if the acquisition followed a *synthesis* strategy and a low response if it followed a *replacement* or a *maintenance* strategy.

For the *replacement* strategy, the key questions are:

1. It was important for the target firm to change to the parent firm's <administrative/operational> information systems as soon as possible.
2. The target firm converted to <administrative/operational> information systems that the parent firm was using.
3. The parent firm has imposed its <administrative/operational> information systems on the target firm.

For each of these questions, we expected a high response if the acquisition followed a *replacement* strategy and a low response if it followed a *maintenance* or a *synthesis* strategy.

Using these eighteen questions (nine for administrative and nine for operational information systems), three scores are computed for each completed survey, one for each MIS acquisition strategy. Each of the three scores is the sum of the answers given to the six key questions for that particular MIS acquisition strategy. Because all responses are based on a five point Likert-type scale, the highest possible score for each strategy is 30. The response will be categorized as the strategy receiving the highest score. The

minimum acceptable score to classify a response is 21. This requires an average score on the key questions of 3.5, which is in the "agree" range. It is, at the same time, low enough to allow for a few of the key indicators to not follow the expected pattern. Responses which do not receive the minimum score for any strategy are reviewed in detail, which may reveal a fourth, unidentified strategy.

Following this procedure, it is possible that one completed survey may receive the same score in more than one MIS acquisition strategy, each of which could exceed the minimum. In the case of such a tie, tie-breaker questions have been identified. For each strategy, a score is computed for each strategy based on one key question for each type of information system. For *maintenance*, the tie-breaker question is:

> After the acquisition, the parent firm did not make significant changes to the <administrative/operational> information systems in the target firm.

For *synthesis*, the tie-breaker question is:

> We evaluated which <administrative/operational> information systems were best for the target firm.

For *replacement*, the tie-breaker question is:

> The target firm converted to <administrative/operational> information systems that the parent firm was using.

The acquisition will be classified as the strategy receiving the highest score on the tie-breaker questions.

Once this procedure has been followed and an initial assessment of the MIS acquisition strategies has been made, a cluster analysis is performed on the key questions.

This is used to confirm the analysis described previously. If the classification strategy is identifying three distinct strategies, the cluster analysis should also reveal three clusters that consist of the same observations as the classification strategy. A χ^2 analysis is then computed between the classifications determined in the first step and those resulting from the cluster analysis.

This two-step analysis attempts to answer our first research question, and confirm (or disconfirm) the following hypothesis:

H1: The strategies followed by MIS managers of acquiring firms when a corporate acquisition occurs can be categorized into three MIS acquisition strategies described as *maintenance*, *synthesis*, and *replacement*.

Testing of Model

The second major step in data analysis involves the model developed earlier and presented again in **Figure 36**. A discriminant analysis uses the three MIS acquisition strategies as the dependent variables (groups). The independent variables (predictors) are multiple item scales on the two dimensions, the *synergies from MIS* and the *capabilities of information systems in the acquired firm*. The discriminant analysis is used to determine

Figure 36 Model of MIS acquisition strategies.

		Synergies from MIS	
		Low	High
Capabilities of Information Systems in the Acquired Firm	High	1. Maintenance	2. Synthesis
	Low	(Upgrade)	3. Replacement

whether these MIS acquisition strategies can be differentiated based on these two dimensions.

H2: The three MIS acquisition strategies of *maintenance, synthesis,* and *replacement* can be differentiated by the levels of *synergies from MIS* and the *capabilities of information systems in the acquired firm.*

H2a: When the synergies from MIS are low and the capabilities of information systems in the acquired firm are high, the MIS acquisition strategy will be *maintenance.*

H2b: When the synergies from MIS are high and the capabilities of information systems in the acquired firm are high, the MIS acquisition strategy will be *synthesis.*

H2c: When the synergies from MIS are high and the capabilities of information systems in the acquired firm are low, the MIS acquisition strategy will be *replacement.*

An ancillary part of the theory presented earlier is the relationship between the construct of synergies from MIS and the sources of value creation as defined by Haspeslagh and Jemison (1991). There are four sources of value creation: combination benefits, general management skill transfer, functional skill transfer, and resource sharing. Each of the sources of value creation and synergies from MIS is measured with three questions answered on a five point Likert-type scale. The average of each group of three

questions yields a score for each type of value creation and for synergies from MIS for each acquisition. These values are used in the analysis.

The theory suggests that those acquisitions that experience high levels of synergies will have functional skill transfer and resource sharing as the main sources of value creation. Those acquisitions that experience low levels of synergies from MIS will have combination benefits and general management skill transfer as the main sources of value creation. This suggests the following hypotheses:

H3: The levels of synergies from MIS and the sources of value creation from MIS will be related.

H3a: Those acquisitions that have high synergies from MIS will have value created from resource sharing within MIS.

H3b: Those acquisitions that have high synergies from MIS will have value created from functional skill transfer within MIS.

H3c: Those acquisitions with low synergies from MIS will have value created from general management skill transfers within MIS.

H3d: Those acquisitions with low synergies from MIS will have value created from combination benefits within MIS.

These hypotheses are tested through the use of correlational analysis. The matrix correlates the synergies from MIS with the four sources of value creation. Those for functional skill transfer and resource sharing should be positive and significant, with the strongest relationship present between resource sharing and synergies from MIS. A

minimum correlation of .7, indicating a high correlation and a marked relationship[14], is required to support H3a. The relationship between synergies from MIS and functional skill transfer should not be as strong as that with resource sharing. A minimum correlation of .4, indicating a moderate correlation and a substantial relationship, is required to support H3b. Hypotheses H3c and H3d describe a negative relationship between synergies from MIS and these sources of value creation. When synergies are low, these variables are expected to be high. The correlations are thus expected to be negative. A minimum correlation of -.4 between synergies from MIS and general management skill transfers is required to support H3c. This indicates a moderate correlation. We expect that when synergies from MIS are low, the highest source of value creation will be from combination benefits. A minimum correlation of -.7 between synergies from MIS and combination benefits is required to support H3d. This indicates a high correlation and a marked relationship.

Fit between MIS Acquisition Strategy and General Acquisition Features

Our theory suggests that there will be a fit between the MIS acquisition strategy followed and the general features of the acquisition, including overall acquisition

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[14]Cutoffs for these relationships are taken from Guilford, 1956, as discussed in Williams, 1992. The guidelines are:

<.20	slight; almost negligible relationship
.20-.40	low correlation; definite but small relationship
.40-.70	moderate correlation; substantial relationship
.70-.90	high correlation; marked relationship
>.90	very high correlation; very dependable relationship

integration strategy, acquisition type, acquisition goal, and relative size. All of these variables are categorical. The MIS acquisition strategy is determined as described above. The other acquisition features are responses to single items on the survey. Fit between these variables is examined through the use of χ^2 analyses. A matrix of observations is determined for each feature. This matrix is compared to an expected matrix based on the independent samples χ^2 test (Huck, Cormier, and Bounds, 1974; pp.218-220.) The procedure for calculating the expected cell frequencies is illustrated in **Figure 37**.

Overall Acquisition Integration Strategy

Proposition 2 suggests that there will be a fit between the MIS acquisition strategy and the overall acquisition integration strategy.

Figure 37 Calculation of expected values for χ^2 analyses.

MIS Acquisition Strategy	Category A	Category B	Category C	Total
Maintenance (M)	E(MA)=(M*A)/GT	E(MB)=(M*B)/GT	E(MC)=(M*C)/GT	M
Synthesis (S)	E(SA)=(S*A)/GT	E(SB)=(S*B)/GT	E(SC)=(S*C)/GT	S
Replacement (R)	E(RA)=(R*A)/GT	E(RB)=(R*B)/GT	E(RC)=(R*C)/GT	R
Total	A	B	C	Grand Total (GT)

H4: The MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* will be related to the overall acquisition integration strategies of *preservation*, *symbiosis*, and *absorption*.

H4a: Among firms adopting an MIS acquisition strategy of *maintenance*, there will be a higher incidence of the *preservation* overall acquisition integration strategy.

H4b: Among firms adopting an MIS acquisition strategy of *synthesis*, there will be a higher incidence of the *symbiosis* overall acquisition integration strategy.

H4c: Among firms adopting an MIS acquisition strategy of *replacement*, there will be a higher incidence of the *absorption* overall acquisition integration strategy.

Acquisition Type

Proposition 3 suggests that there will be a fit between the MIS acquisition strategy and the acquisition type.

H5: The MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* will be related to the acquisition types of *unrelated*, *vertical*, *product extension*, *market extension*, and *horizontal*.

H5a: Among firms adopting an MIS acquisition strategy of *maintenance*, there will be a higher incidence of the *unrelated* and *vertical* acquisition types.

H5b: Among firms adopting an MIS acquisition strategy of *synthesis*, there will be a higher incidence of the *product extension* acquisition type.

H5c: Among firms adopting an MIS acquisition strategy of *replacement*, there will be a higher incidence of the *market extension* and *horizontal* acquisition types.

Acquisition Goal

Proposition 4 suggests that there will be a fit between the MIS acquisition strategy and the acquisition goal.

H6: The MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* will be related to the acquisition goals of *domain exploring*, *domain extending*, and *domain strengthening*.

H6a: Among firms adopting an MIS acquisition strategy of *maintenance*, there will be a higher incidence of the *domain exploring* acquisition goal.

H6b: Among firms adopting an MIS acquisition strategy of *synthesis*, there will be a higher incidence of the *domain extending* acquisition goal.

H6c: Among firms adopting an MIS acquisition strategy of *replacement*, there will be a higher incidence of the *domain strengthening* acquisition goal.

Relative Size

The relative size of the firms is likely to influence the strategy followed by MIS managers. Following the standard set by Kitching (1967), we will use a threshold of two

percent in determining a "size mismatch." *Mergers & Acquisitions*, the initial source of our data, reports either revenue or total assets for both firms for most transactions. A size mismatch is defined as the target firm being less than two percent the size of the parent firm, based on revenue or total assets (if revenue not available).

H7: In the event of a size mismatch, the MIS acquisition strategy is more likely to be *maintenance* or *replacement*, and less likely to be *synthesis*.

Other Hypotheses

Our theory suggests that the MIS integration will be most difficult when a *synthesis* strategy is chosen. This would also be reflected in the amount of time required to complete the integration.

H8: The average length of time to complete the MIS integration will be longer in acquisitions following a *synthesis* MIS acquisition strategy.

The time to complete the MIS integration is measured on two seven point Likert scales. One scale is the time required to complete the integration for administrative information systems, and the second is for operational information systems. This hypothesis will be tested using a t-test based on an average of these times. The mid-point of the time ranges will be used to simulate a continuous variable.

Survey Validation

To further validate the survey instrument, executives from Parent Firm Y (see Chapter 3 and Appendix B) were asked to complete the survey for each of the six acquisitions included in the case study (one response per acquisition).[15]

The scoring scheme described above consistently categorized 4 of the 6 acquisitions as following the same MIS acquisition strategy as in the case study. A summary of these results is illustrated in **Figure 38**. Two acquisitions, Y2 and Y5, failed to meet the minimum score for any of the three strategies. They could not be classified as any of the three strategies, according to the survey responses. Acquisition Y2 was classified as *replacement* in the case study. Its highest score was in this category. Acquisition Y5 was classified as *synthesis* during the case study. Its highest score was actually for the *maintenance* strategy. We expect that the *synthesis* strategy will be the most difficult to identify. It

Figure 38 Parent Firm Y survey results for MIS acquisition strategies.

	Maint-enance	Syn-thesis	Replace-ment	Classification
Y1	22	22*	18	Synthesis (tie-breaker)
Y2	10	17	18	
Y3	13	13	26*	Replacement
Y4	11	15	26*	Replacement
Y5	18	14	6	
Y6	25*	16	7	Maintenance

[15]Our main contact from Parent Firm X had been promoted to a new position since the time of our interviews, and was unable to participate in this stage of the study.

should be noted, however, that these observations were not *mis*-classified; they simply could not be classified at all with the previously discussed scoring scheme.

Figure 39 displays the results on other variables measured by the survey for the acquisitions that were successfully classified. **Figure 39** shows the mathematical average responses to the three questions for each variable. With this limited number of responses, it is impossible to statistically evaluate these variables. However, by observation, we see that, with only one exception, the data is consistent with our hypotheses. Synergies from MIS were high (5.0 on 5 point scale) in the *synthesis* MIS acquisition strategy. This strategy also experienced the highest level of MIS capabilities in the acquired firm (4.0). These measures are consistent with H2b. Synergies from MIS were high (5.0) in the *replacement* strategy as well, consistent with H2c. MIS capabilities were lower for this strategy (3.3) than for *synthesis*, also consistent with H2c. Synergies from MIS were lowest (1.0) in the *maintenance* strategy, consistent with H2a. However, the MIS capabilities were also lowest under this strategy, which is not consistent with H2a.

Figure 39 Parent Firm Y survey results for capabilities of MIS in the acquired firm, MIS synergies, and sources of value creation.

	MIS Capabilities	Synergies from MIS	Combination Benefits	General Mgmt Skill Transfer	Functional Skill Transfer	Resource Sharing
Replacement	3.3	5.0	3.0	2.7	2.8	4.7
Synthesis	4.0	5.0	2.3	3.3	3.3	5.0
Maintenance	1.7	1.0	2.3	1.3	1.3	1.0

The pattern of responses for the sources of value creation (combination benefits, general management skill transfer, functional skill transfer, and resource sharing) appears

to be at least somewhat consistent with H3. It is impossible to evaluate possible correlations with this limited number of responses.

Figure 40 shows the results from these responses relating to H4, H5, and H6. Acquisition Y1 is consistent with H4b and H6b. The acquisition type response classified Acquisition Y1 as *market extension*, rather than *product extension* as in the case study. However, we believe that this was the result of confusing wording on the survey, which was corrected. Acquisitions Y3 and Y4 are consistent with H4c, H5c, and H6c. Acquisition Y6 is consistent with H4a, H5a, and H6a. Unfortunately, because of missing values, responses concerning H7 and H8 cannot be evaluated on the basis of survey responses.

Figure 40 Parent Firm Y survey results.

	MIS Acquisition Strategy	Overall Integration Strategy	Acquisition Type	Acquisition Goal
Y1	Synthesis	Symbiosis	Market Extension	Domain Extension
Y3	Replacement	Absorption	Horizontal	Domain Strengthening
Y4	Replacement	Absorption	Horizontal	Domain Strengthening
Y6	Maintenance	Preservation	Vertical	Domain Exploring

Summary

The chapter has described the methodology of this study. We have developed a classification process by which responses will be classified as to the MIS acquisition strategy followed, and discussed how we will test our model of different MIS acquisition

strategies. We have presented detailed hypotheses and discussed the statistical means by which they will be tested. Our next chapter presents the results of this study.

Chapter 5 - RESULTS

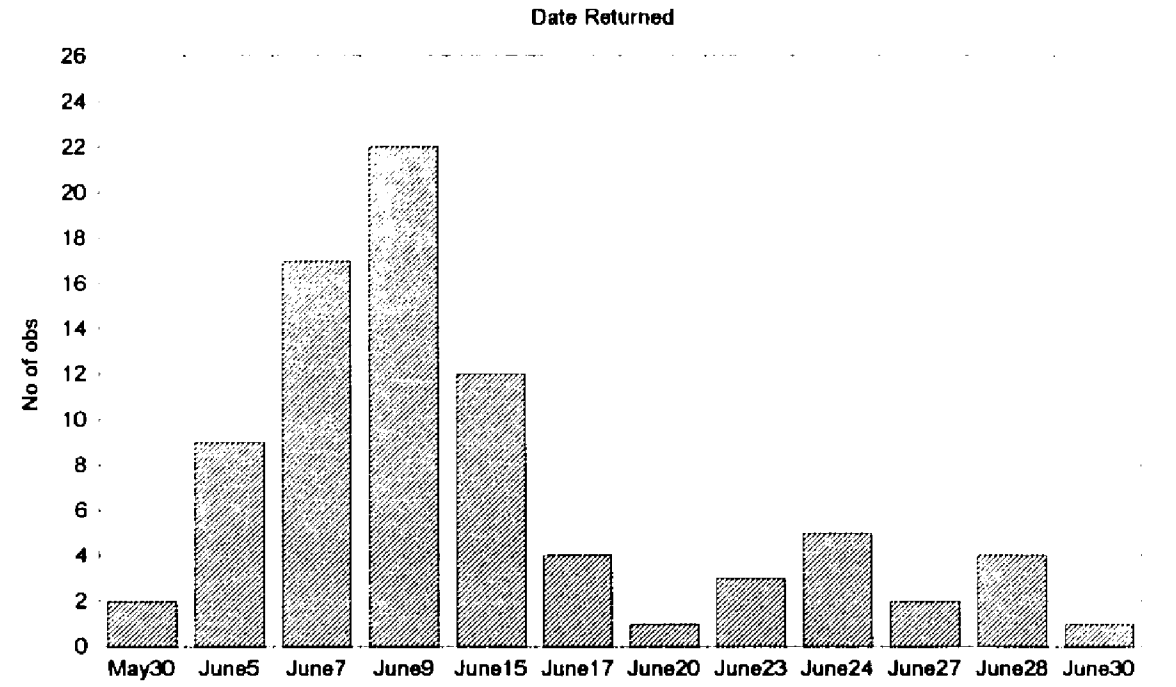
Introduction

This chapter describes the administration of the surveys and presents results. The first section explains the process followed in sending out the surveys and provides response rates. The second section offers descriptive statistics on the survey respondents, the parent firms, the target firms, and the acquisitions. The third section presents statistical analysis and discussion of the hypotheses presented in Chapter 4. The chapter concludes by examining our sample for response bias.

Survey Administration

As discussed in Chapter 4, the population for this study was 583 firms with which a telephone contact had been made. These calls were to identify an individual to whom the materials could be directed. A cover letter, the survey, and a business reply envelope were sent to these 583 firms via first class mail during the week of May 22, 1995. Approximately one-half were sent on May 22 and one-half were sent on May 24. The letter requested a response by June 9, which was approximately two weeks after the packet would have been delivered to the recipient. Of the 583 survey packets, six were returned by the post office or the firms as "return to sender," leaving an effective population of 577. By June 9, fifty responses had been received.

Figure 41 Dates survey returned.



A follow-up letter was sent to non-respondents on June 13 (518 firms as of that time). It also offered to fax an additional copy of the survey to the respondent if necessary. The follow-up requested that the survey be returned by June 26th. Responses were accepted through July 7. The last response was actually received on June 30.[16] The dates on which responses were received are illustrated in **Figure 41**. Responses received by June 9 are identified as the "first wave" of responses. Later responses will be referred to as the "second wave." June 9 was chosen as the last date of the first wave because this was the original deadline provided on the contact letter, and because there was a six day

[16]Two additional responses have been received months after the materials were distributed. One was received on July 20, and a second was received on August 30. Because of this extreme delay, these responses were not included in the analysis.

gap before additional responses were received. No responses were received from June 10 to 14.

As of July 7, 82 usable responses had been received. In addition, 23 companies informed us that they were unable to participate either because no one who had participated in the acquisition remained at the firm or for some other reason. This provided an overall response rate of 18%[17] and a usable response rate of 14%[18]. This is slightly below the anticipated response rate of 20%. A chart of the response rate can be found in **Figure 42**. Copies of the cover letter and the follow-up letter can be found in Appendix E.

Figure 42 Response rates.

Surveys mailed	583
Returned by Post Office, address unknown or incomplete	6
Effective population	577
Responses indicating non-participation	23
Usable responses	82

[17]The *overall* response rate includes surveys received and other responses in which companies indicated they could not participate because of company policy or because no one was available that had participated in the acquisition ((82+23)/577).

[18]The *usable* response rate refers to the actual number of survey responses received. These are the cases for which we have data that can be analyzed (82/577).

Descriptive Statistics

Characteristics of Respondents

By far, most (69 of 82) of the respondents were employed by the parent firm prior to the acquisition. Only eight were employed by the target firm. The remaining respondents had either been hired after the acquisition took place or were with an outsourcer (see **Figure 43**). This is not surprising, given that the parent firm was targeted in the telephone contacts and the subsequent mailing.

Figure 43 Employer of respondents before acquisition.

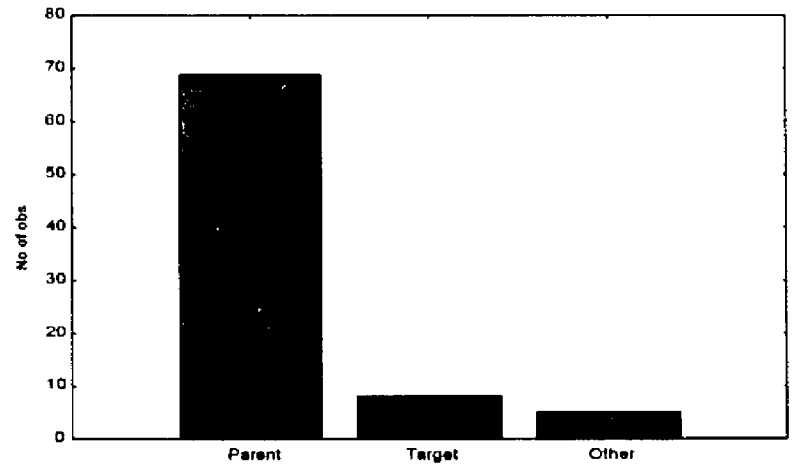
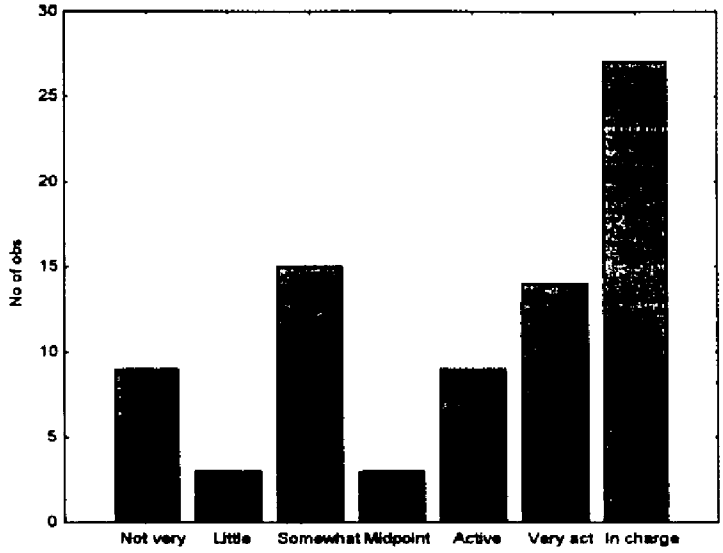
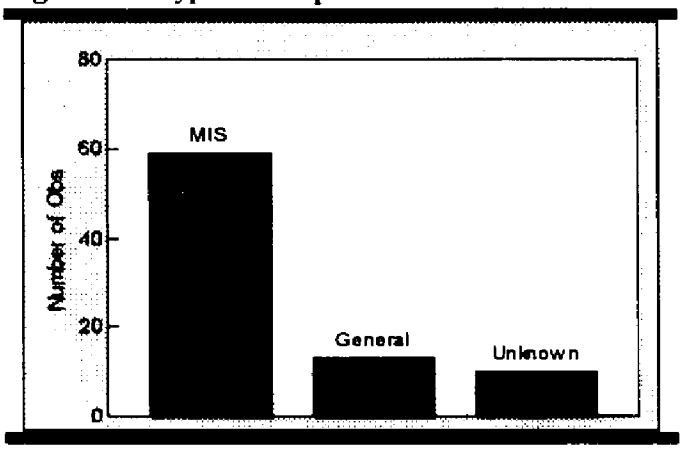


Figure 44 Role in the MIS integration.



The level of involvement was measured on a 7-point scale ranging from "not very involved" to "in charge." The responses were quite high (mean=4.9; standard deviation=2.1). Of 82 responses, 27 were completed by individuals who had been in charge of the MIS integration following the acquisition. Fifty had been at least "actively involved" in the integration effort (see **Figure 44**).

Figure 45 Types of respondents.



The most frequent job titles of respondents were Vice President of MIS (11 responses), Manager of MIS (9), and Director of MIS (11). We also classified the job titles of respondents into three categories, MIS (59), general (13), and unknown (10). This distribution is shown in **Figure 45**. This indicates that we were successful in placing the questionnaire with MIS managers. Furthermore,

the high level of involvement indicates we were successful in placing the questionnaire with those who had been involved with the acquisition in question.

Characteristics of Parent Firms

The parent firms came from a variety of industries. SIC codes were provided in the *Mergers & Acquisitions* (1992) listing for each transaction. The effective population (577 firms) represented a wide range of industries. **Figure 46** displays the different SIC codes represented in the population and the responses. A χ^2 analysis between the population distribution (expected) and the response distribution (observed) shows that the industry breakdown of our sample is similar to the population (χ^2=49.8, p<.74). This supports the generalizability of our findings.

Figure 46 Percentage of responses and population by SIC code.

SIC Code	SIC Description	% Resp	% Pop
01-09	Agriculture, Forestry, Fishing	0.0	0.5
12	Coal Mining	0.0	0.3
13	Oil and Gas Extraction	2.4	1.7
14	Nonmetallic Minerals Mining	0.0	0.3
15-17	Construction	0.0	1.6
20	Food and Kindred Products	3.7	1.7
22	Textile Mill Products	1.2	0.5
23	Apparel and Other Finished Fabric Products	0.0	0.5
24	Lumber and Wood Products	1.2	0.3
25	Furniture and Fixtures	1.2	0.5
26	Paper and Allied Products	0.0	0.7
27	Printing, Publishing	1.2	3.1
28	Chemical and Allied Products	3.7	2.3
29	Petroleum Refining	0.0	0.2
30	Rubber and Plastics Products	0.0	1.6
32	Stone, Clay, Glass, and Concrete Products	0.0	0.2
33	Primary Metal Industries	1.2	0.7
34	Fabricated Metal Products	1.2	1.0
35	Industrial and Commercial Machinery, Computer Equipment	3.7	4.7
36	Electrical and Electronic Equipment and Components	3.7	5.2
37	Transportation Equipment	3.7	1.6
38	Measuring Instruments, Photographic, Medical, and Optical Goods	4.9	5.5
39	Miscellaneous Manufacturing	0.0	0.9
41	Local and Intercity Passenger Transportation	0.0	0.2
42	Motor Freight Transportation	0.0	0.5
44	Water Transportation	1.2	0.5
45	Air Transportation	0.0	0.5
47	Transportation Services	0.0	0.2
48	Communications (Tele., Radio, TV, CATV)	1.2	2.3
49	Electric, Gas, Water, and Sanitary Services	6.1	2.1
50-51	Wholesale Trade	7.3	6.8
52	Building Materials, Hardware, Garden Supply, Mobile Home Dealers	0.0	0.7
53	General Merchandise Stores	0.0	0.2
54	Food Stores	0.0	0.9
55	Automotive Dealers and Gas. Service Stations	0.0	0.2
56	Apparel and Accessory Stores	1.2	1.4
57	Home Furniture, Furnishings Stores	0.0	0.3
58	Eating and Drinking Places	0.0	0.2
59	Miscellaneous Retail	3.7	2.1
60	Depository Institutions	24.4	13.5
61	Nondepository Credit Institutions	0.0	1.6
62	Security and Commodity Brokers, Dealers, Services	0.0	0.7
63-64	Insurance	2.4	2.4
65	Real Estate	0.0	0.2
67	Business Services	0.0	0.7
70	Hotels and Other Lodging Places	0.0	0.2
72	Personal Services	3.7	3.6
73	Business Services	4.9	5.6
737	Computer and Data Processing Services	3.7	3.6
75	Automotive Services	0.0	0.5
76	Miscellaneous Repair Services	0.0	0.2
79	Amusement and Recreation Services	0.0	0.7
80	Health Services	6.1	7.4
81	Legal Services	0.0	0.2
83	Social Services	0.0	0.2
87	Engineering, Accounting, Management, and Related Services	1.2	3.5
89	Miscellaneous Services	0.0	0.3
99	Nonclassifiable Establishments	0.0	0.3

Although we asked for revenue data to determine the relative size of the firms, six firms provided total assets. These firms were all depository institutions, and the use of assets to indicate firm size is the norm in the banking industry. Because of this discrepancy, these six institutions were excluded from our analysis of parent firm size, shown in **Figure 47**. In addition, nine other responses did not indicate the size of the parent firm.

Figure 47 Descriptive statistics - parent size (based on annual revenue).

Basic Stats	Descriptive Statistics								
Variable	Valid N	Mean	Median	Min	Max	Lower Quartile	Upper Quartile	Quartile Range	Std. Dev
P_size (millions)	67	1756.6	250.0	3.5	30000.0	41.3	950.0	907.8	4683.8

The parent firms responding were active in acquisitions. Only 12 firms had not made another acquisition in the three years prior to the acquisition covered in the survey. **Figure 48** provides a breakdown of these responses.

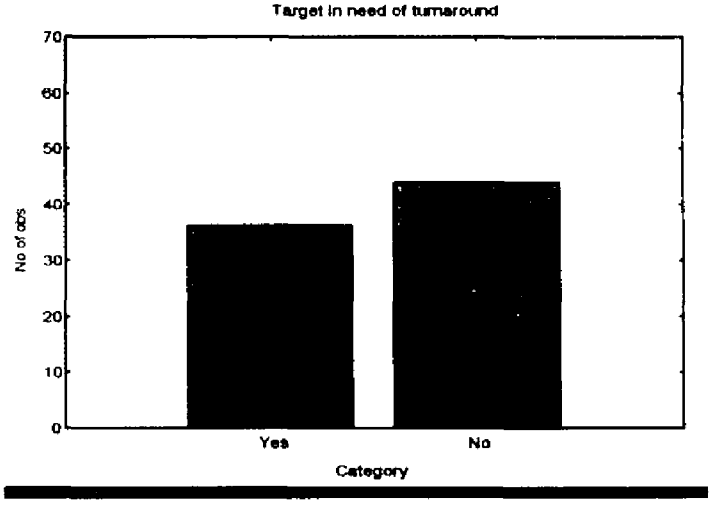
Figure 48 Number of acquisitions made by parent firms in three years prior to surveyed acquisition.

	Count	Cumul. Count	Percent	Cumul. Percent
None	12	12	14.6	14.6
1-2	32	44	39.0	53.6
3-5	24	68	29.3	82.9
6+	13	81	15.9	98.8
Missing	1	82	1.2	100.0

Characteristics of Target Firms

The target firms were about evenly split between those in need of a turnaround and those not in such need. As shown in **Figure 49**, 36 of 80 firms (45%) were judged, by the respondent, to have been in need of a turnaround at the time of the acquisition; 44 of 80 (55%) firms were not in need of a turnaround.

Figure 49 Target firm in need of turnaround.



The target firms ranged in size from $75,000 to $700 million in revenues, with a mean of $11.4 million, as shown in **Figure 50**. As discussed above, firms which provided total asset figures were excluded from this analysis. A few firms did not provide information as to firm size.

Figure 50 Target firm size.

Basic Stats	Descriptive Statistics								
Variable	Valid N	Mean	Median	Min	Max	Lower Quartile	Upper Quartile	Quartile Range	Std. Dev
T_size (millions)	68	70.9	11.4	.08	700.0	2.5	50.0	47.5	132.5

Characteristics of the Acquisitions

The relative size of the parent and target firm ranged widely, from less than 1% to 87% of the size of the parent firm. **Figure 51** provides a breakdown of the size ratio. More than one-half of the target firms were less than 10% the size of the parent firms.

Figure 51 Ratio of target and parent firm size.

Category	Count	Cumul. Count	Percent
0.0<=x<0.1	43	43	52.4
0.1<=x<0.2	9	52	11.0
0.2<=x<0.3	6	58	7.3
0.3<=x<0.4	5	63	6.1
0.4<=x<0.5	1	64	1.2
0.5<=x<0.6	2	66	2.4
0.6<=x<0.7	0	66	0.0
0.7<=x<0.8	3	69	3.7
0.8<=x<0.9	3	72	3.6
Missing	10	82	12.2

As shown in **Figure 52**, more than half of the respondents indicated that the acquisitions followed a strategy of "absorption" at the overall level. This indicates a heavy preference for consolidating a target firm's operations with the parent firm.

Figure 52 Distribution of overall acquisition integration strategy.

Overall Integration Strategy	Count	Cumul. Count	Percent	Cumul. Percent
Absorption	46	46	56.1	56.1
Preservation	16	62	19.5	75.6
Symbiosis	19	81	23.2	98.8
Missing	1	82	1.2	100.0

Figure 53 Distribution of acquisition goals.

Acquisition Goal	Count	Cumul. Count	Percent	Cumul. Percent
Domain Strengthening	41	41	50.0	50.0
Domain Extension	35	76	42.7	92.7
Domain Exploring	5	81	6.1	98.8
Missing	1	82	1.2	100.0

One half of the responding firms had an acquisition goal of "domain strengthening," as shown in **Figure 53**. Very few (6%) were "domain exploring." This indicates that few of the firms in our sample were using the acquisition to move into a new area of business not similar to that of the parent firm.

The acquisition types reported were heavily concentrated in the "horizontal" category, as shown in **Figure 54**. Very few of the acquisitions (4.9%) were "unrelated" (sometimes referred to as "conglomerate") in nature. This is consistent with recent trends away from acquiring companies that have very little in common with the parent firm's core business.

Figure 54 Distribution of acquisition types.

Acquisition Type	Count	Cumul. Count	Percent	Cumul. Percent
Horizontal	42	42	51.2	51.2
Vertical	5	47	6.1	57.3
Product Extension	18	65	22.0	79.3
Market Extension	12	77	14.6	93.9
Unrelated	4	81	4.9	98.8
Missing	1	82	1.2	100.0

Hypothesis Testing

The following section will review each hypothesis in turn, presenting the results of the statistical analysis.

Hypothesis 1

Hypothesis 1 concerns the classification of MIS acquisition strategies as *maintenance*, *synthesis*, and *replacement*.

H1: The strategies followed by MIS managers of acquiring firms when a corporate acquisition occurs can be categorized into three MIS

acquisition strategies described as *maintenance*, *synthesis*, and *replacement*.

This hypothesis was tested in a two-stage procedure. First, each response was scored according to the classification scheme described in Chapter 4. This successfully classified 76 of the 82 responses, as presented in **Figure 55**. The tie-breaking procedure was not necessary. The heavy predominance of the *replacement* classification is evident, and influences our subsequent analyses.

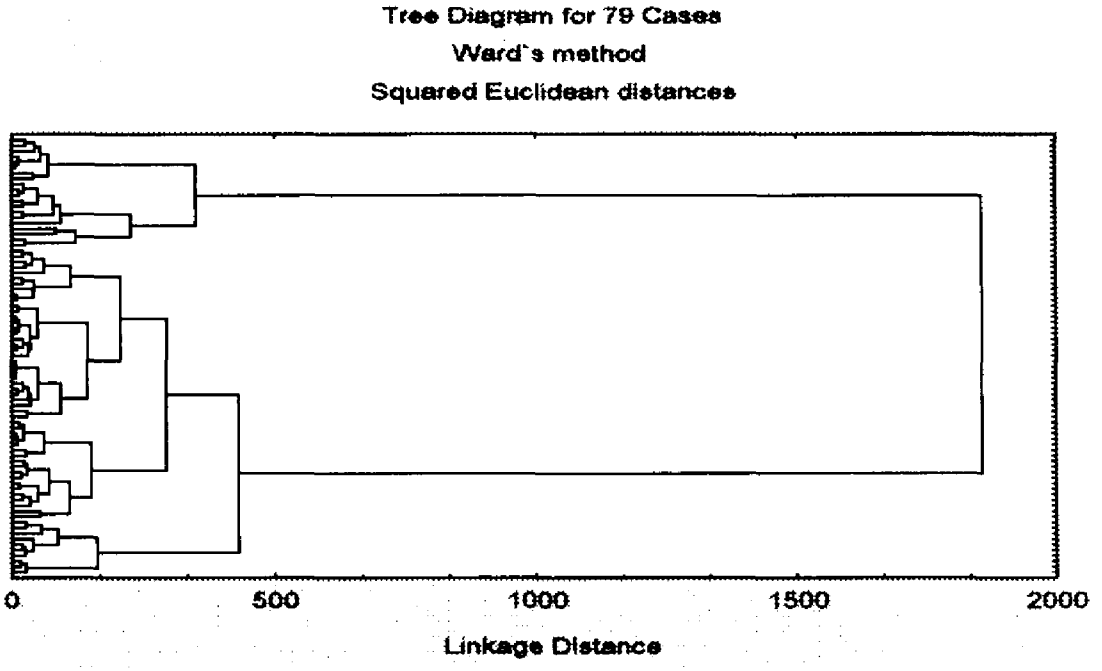
Figure 55 MIS acquisition strategy classifications.

Maintenance	15
Synthesis	5
Replacement	56
Unknown	6
Total	82

Second, a cluster analysis was performed (results are displayed in **Figure 56**). Because of missing values, this analysis included 79 cases.[19] It appears to indicate a 2, 3, or 5 cluster solution.

[19]Three of the "unknown" responses from the first stage were so classified because respondents had not answered at least one of the key questions, as identified in Chapter 4. Because the cluster analysis relied on these questions, these responses could not be used.

Figure 56 Results of cluster analysis.



We reviewed the five cluster solution to determine if the three strategies identified in our theory were present. Results are displayed in **Figure 57**. Two of the *unknown* responses in cluster 2 had their highest score in the *maintenance* strategy, but failed to meet the minimum cutoff of 21. The *synthesis* strategy did not emerge in the cluster analysis. If we consider clusters 1-2 to represent the *maintenance* strategy, 60% (12 of 20) of the cases in that cluster were classified as such in the classification scheme. In clusters 3-4-5, 90% of the cases were classified as *replacement* (53 of 59). This provides an overall agreement rate of 82% (65 of 79). However, if we classify responses as either *replacement* or *non-replacement*, this clearly indicates a two cluster solution (clusters 1-2 comprising *non-replacement* and clusters 3-4-5 comprising *replacement*). This provides an overall agreement rate of 92% (73 of 79).

Figure 57 Summary of cluster analysis results.

Cluster	# Cases	Strategy
1	8	Maintenance
2	4	Maintenance
	5	Unknown
	3	Synthesis
3	31	Replacement
4	16	Replacement
	2	Synthesis
5	6	Replacement
	3	Maintenance
	1	Unknown

Results of a χ^2 analysis comparing the distribution of strategies as determined by our scoring scheme and the two cluster solution can be found in **Figure 58**. It shows the similarity of these two methods of classifying MIS acquisition strategies. The χ^2 test shows whether there is a significant difference between the observed frequency of observations of a categorical variable and the expected frequency of the observations. The expected frequencies for our χ^2 analysis were computed using the procedure described in Chapter 4. A low p value (<.05) provides statistical support for concluding that the distributions are different. A high p value, as we see here (p<.89), provides support for our hypothesis that the distributions are the same.

Figure 58 χ^2 comparing classification scheme with cluster analysis.

Observed vs. Expected Frequencies Chi-Square = .61 df = 3 p < .89				
	observed CLUSTER	expected CLUSTER	O - E	(O-E)**2 /E
Non-Replacement	0	0	0	0
	20	20	0	0
Replacement	53	59	-6	.61
	6	0	0	0
Total	79	79	-6	.61

This analysis provides limited support for H1. Parent firms following a *replacement* strategy can clearly be identified. The *maintenance* strategy is apparent, but less clearly defined. The *synthesis* strategy did not emerge. This may have resulted from the limited number of observations that indicated the *synthesis* strategy. The remainder of our analysis will rely on the MIS acquisition strategies as determined by the classification

scheme. However, our discussion will take into account the limited support for the synthesis strategy.

Hypothesis 2

Hypothesis 2 concerns the testing of our 2x2 model which was shown in **Figure 25**. It proposed that the MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* can be differentiated by the two factors *capabilities of information systems in the acquired firm* and *synergies from MIS*.

H2: The three MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* can be differentiated by the levels of *synergies from MIS* and the *capabilities of information systems in the acquired firm.*

H2a: When the synergies from MIS are low and the capabilities of information systems in the acquired firm are high, the MIS acquisition strategy will be *maintenance*.

H2b: When the synergies from MIS are high and the capabilities of information systems in the acquired firm are high, the MIS acquisition strategy will be *synthesis*.

H2c: When the synergies from MIS are high and the capabilities of information systems in the acquired firm are low, the MIS acquisition strategy will be *replacement*.

The first step in this analysis is to examine the two factors *capabilities of information systems in the acquired firm* and *synergies from MIS*. These were each measured by three items (1-5 Likert-type scale). Because the scales measuring these factors have not been previously tested, reliability analysis was performed. Cronbach's α for the three items measuring *synergies from MIS* was .86, which indicates a high degree of reliability. The α value for the *capabilities of information systems in the acquired firm*, however, was .18, indicating no reliability at all.[20] This is an initial indication that this factor may not fit the model as hypothesized.

A discriminant analysis was performed with the grouping variable of *strategy* (the MIS acquisition strategy as determined by the scoring scheme) and the independent

Figure 59 Results of discriminant analysis.

N=82 cases	No of vars in model: 2; Grouping: STRATEGY (4 grps) Wilks' Lambda: .81 approx F (6,154)=2.76 p<.01					
	Wilks Lambda	Partial Lambda	F-remove	p-level	Toler.	1-Toler (R^2)
MIS_Syn	.90	.90	2.83	.04	.83	.17
MIS_Cap	.83	.98	.49	.69	.83	.17

variables *capabilities of information systems in the acquired firm* (MIS_Cap) and *synergies from MIS* (MIS_Syn). Results are displayed in **Figure 59**. This shows that the discriminant function is significant (p<.01), but we must examine the classification matrix

[20]An α value of .47 was possible if only two of the three scale items were used. However, this is still not sufficient to indicate reliability.

and the means of the variables for each group to determine its meaning. These results are presented in **Figure 60** and **Figure 61**.

Figure 60 Means for each strategy.

	MIS_Syn	MIS_Cap	Valid N
Maintenance	2.11	2.04	15
Synthesis	3.73	2.73	5
Replacement	3.45	2.67	56
Unknown	3.44	2.61	6
All Groups	3.22	2.55	82

Figure 61 Classification matrix from discriminant analysis.

N=82 Cases	Rows: Observed classifications Columns: Predicted classifications				
	% Correct	Maintenance	Synthesis	Replacement	Unknown
Maintenance	26.67	4	0	11	0
Synthesis	0.00	0	0	5	0
Replacement	91.07	5	0	51	0
Unknown	0.00	0	0	6	0
Total	67.07	9	0	73	0

The discriminant function is most useful in identifying those acquisitions following a *replacement* strategy, with 91% accuracy. However, because it is not successful in classifying any of the other strategies, this approach is not as useful as we had hoped.

Because of the problems with the *MIS capabilities* scale, the same discriminant function was performed while relying on one key question to determine this variable. This question asked the degree of agreement with the statement "The target firm had high quality administrative and operational information systems prior to the acquisition." The results from this analysis are in **Figure 62** and **Figure 63**. This results in a slightly higher level of significance, but does not improve the accuracy of the classification matrix, as shown in **Figure 64**. This analysis leads us to reject H2 as stated. However, part of the model is supported by this analysis. *Synergies from MIS* appears to be a factor in the choice of an MIS acquisition strategy.

Figure 62 Results of discriminant analysis (relying on 1 question for MIS_Cap).

N=82 cases	No of vars in model: 2; Grouping: STRATEGY (4 grps) Wilks' Lambda: .79334 approx F (6,154)=3.1497 p<.0061					
	Wilks Lambda	Partial Lambda	F-remove	p-level	Toler.	1-Toler (R^2)
MIS_Cap (1 question)	.830588	.955160	1.204909	.313677	.997097	.002902
MIS_Syn	.957076	.828925	5.297139	.002256	.997097	.002903

Figure 63 Means for each strategy.

	MIS_Syn	MIS_Cap (1 question)	Valid N
Maintenance	2.11	2.47	15
Synthesis	3.73	1.60	5
Replacement	3.45	2.46	56
Unknown	3.44	2.61	6
All Groups	3.22	2.43	82

Figure 64 Classification matrix from discriminant analysis.

N=82 Cases	Rows: Observed classifications Columns: Predicted classifications				
	% Correct	Maintenance	Synthesis	Replacement	Unknown
Maintenance	33.33	5	0	10	0
Synthesis	0.00	0	0	5	0
Replacement	89.29	6	0	50	0
Unknown	0.00	0	0	6	0
Total	67.07	9	0	73	0

Figure 65 ANOVA of MIS synergies.

	STRATEGY					
Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
1	3	7.65	78	1.44	5.303	.002

To further explore the factor *synergies from MIS*, a one-way analysis of variance was performed. The dependent variable was the level of MIS synergies. The independent variable was the three different MIS acquisition strategies. This revealed a main effect on the strategy variable, shown in **Figure 65** and graphed in **Figure 66**. A planned comparison was run, based on the model, between the *synthesis* and *replacement* observations on one hand and the *maintenance* observations on the other. Results of this analysis are shown in **Figure 67**. This supports the portion of our model which proposes that *synergies from MIS* will be high in firms following a *synthesis* or *replacement* strategy and low in firms following a *maintenance* strategy.

Figure 66 Plot of means of synergies from MIS for ANOVA.

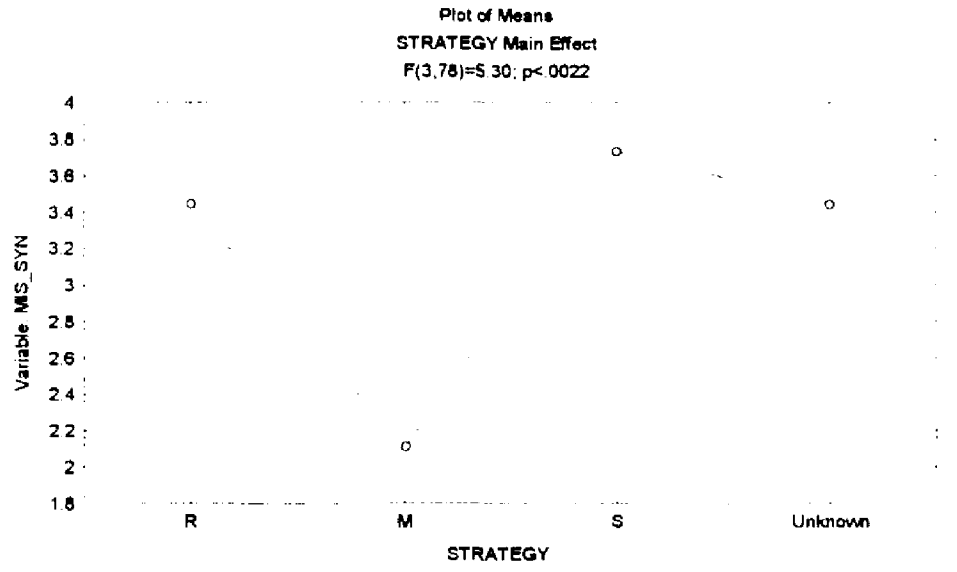


Figure 67 Results of planned comparison.

	STRATEGY				
Univar Test	Sum of Squares	df	Mean Square	F	p-level
Effect	18.05	1	18.05	12.52	.0007
Error	112.45	78	1.44		

Hypothesis 3

Hypothesis 3 suggests a relationship between the *sources of value creation* as discussed by Haspeslagh and Jemison (1991) and the *synergies from MIS*.

H3: The levels of synergies from MIS and the sources of value creation from MIS will be related.

H3a: Those acquisitions that have high synergies from MIS will have value created from resource sharing within MIS.

H3b: Those acquisitions that have high synergies from MIS will have value created from functional skill transfer within MIS.

H3c: Those acquisitions with low synergies from MIS will have value created from general management skill transfers within MIS.

H3d: Those acquisitions with low synergies from MIS will have value created from combination benefits within MIS.

To test this hypothesis, a correlation matrix was computed between the synergies from MIS and the four sources of value creation. Results are presented in **Figure 68**. This analysis reveals a significant, positive correlation of .91 between *resource sharing* and *synergies from MIS*, as suggested in H3a. This exceeds the cutoff value of .7 previously established, and supports H3a. This high correlation indicates that there is a very strong relationship between these two factors. The other correlations, however do not support the assertions of H3b, H3c, or H3d, leading us to conclude that those hypotheses are not supported by the data.

Figure 68 Correlation matrix between synergies from MIS and sources of value creation.

N=82, * sig at p<.05	Synergies from MIS
Resource Sharing	.91*
Functional Skill Transfer	.03
General Management Skill Transfer	.24*
Combination benefits	.30*

The correlations between *synergies from MIS* and *general management skill transfer* and *combination benefits* are actually in the opposite direction from that hypothesized. We suggested in Chapter 4 that there would be a negative relationship between synergies and these two sources of value creation. The data indicate that the relationship, while weaker than that with resource sharing, is still in a positive direction.

Hypothesis 4

Hypothesis 4 suggests that firms will be more likely to select an MIS acquisition strategy which is similar to the overall integration strategy.

H4: The MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* will be related to the overall acquisition integration strategies of *preservation*, *symbiosis*, and *absorption*.

H4a: Among firms adopting an MIS acquisition strategy of *maintenance*, there will be a higher incidence of the *preservation* overall acquisition integration strategy.

H4b: Among firms adopting an MIS acquisition strategy of *synthesis*, there will be a higher incidence of the *symbiosis* overall acquisition integration strategy.

H4c: Among firms adopting an MIS acquisition strategy of *replacement*, there will be a higher incidence of the *absorption* overall acquisition integration strategy.

Figure 69 displays the distribution of cases based on these two variables. Cases which were not classified (*unknown*) as to MIS acquisition strategy were dropped from this analysis. The shaded boxes identify those combinations that were hypothesized to be a *good fit*.

Figure 69 Actual distribution - MIS acquisition strategies and overall acquisition integration strategies.

MIS Acquisition Strategies	Overall Acquisition Integration Strategies			
	Preservation	Symbiosis	Absorption	Total
Maintenance	10	3	2	15
Synthesis	1	2	2	5
Replacement	5	11	39	55
				75

Figure 70 χ^2 analysis for hypothesis 4.

N=75	Chi-Square = 26.28832 df = 8 p < .000940			
	observed H4_ACT	expected H4_EXP	O - E	(O-E)**2 /E
C: 1	10	3.20	6.80	14.45
C: 2	3	3.20	-.20	.01
C: 3	2	8.60	-6.60	5.07
C: 4	1	1.07	-.07	.00
C: 5	2	1.07	.93	.82
C: 6	2	2.87	-.87	.26
C: 7	5	11.73	-6.73	3.86
C: 8	11	11.73	-.73	.05
C: 9	39	31.53	7.47	1.77
Sum	75	75.00	.00	26.29

The χ^2 analysis (**Figure 70**) compares the distribution in **Figure 69** with the expected distribution, if there were not a relationship between the variables. The results strongly support ($p<.0009$) our hypothesis that there is a pattern of fit between the overall acquisition integration strategies and the MIS acquisition strategies. The actual distribution appears to be different from the distribution that would occur if there were not some type of relationship. This analysis supports our hypotheses, H4. Further analysis is required to determine the exact nature of this relationship.

Figure 71 χ^2 analysis for hypothesis 4a.

N=75	Chi-Square = 22.96081 df = 3 p < .000041			
	Observed H4A_Act	Expected H4a_Exp	O-E	(O-E) **2/E
C: 1 Maintenance/ Preservation	10	3.20	6.80	14.45
C: 2 Maintenance/ Not Preservation	5	11.80	-6.80	3.92
C: 3 Not Maintenance/ Preservation	6	12.80	-6.80	3.61
C: 4 Not Maintenance/ Not Preservation	54	47.20	6.80	.98
Sum	75	75.0	0	22.96

H4a concerns the presence of a fit between the *maintenance* MIS acquisition strategy and the *preservation* overall acquisition integration strategy. To test this hypothesis, we collapsed the distribution in **Figure 69** into a two-by-two distribution and computed another χ^2 statistic. These results are presented in **Figure 71**. The low p-value ($p<.00004$) supports our hypothesis of a fit between these two variables. It suggests a very low probability that the observed distribution is the same as what would be expected without such a relationship. This supports H4a.

H4b concerns the presence of a fit between the *synthesis* MIS acquisition strategy and the *symbiosis* overall acquisition integration strategy. The results here are problematic. The majority of the acquisitions (11 of 16) following the *symbiosis* overall acquisition integration strategy followed the *replacement* MIS acquisition strategy, rather than the *synthesis* strategy as hypothesized. Obviously, this does not support H4b ($\chi^2=1.1$, $p<.78$). There appears to be more evidence for a fit between the *symbiosis* overall acquisition integration strategy and the *replacement* MIS acquisition strategy. We

hesitate to jump to this conclusion, however, because of the problems with the *synthesis* strategy.

Figure 72 χ^2 analysis for hypothesis 4c.

N=75	Chi-Square = 15.52349 df = 3 p < .001422			
	Observed H4c_Act	Expected H4c_Exp	O-E	(O-E) **2/E
C: 1 Replacement/ Absorption	39	31.53	7.47	1.77
C: 2 Replacement/ Not Absorption	16	23.46	-7.46	2.37
C: 3 Not Replacement/ Absorption	4	11.47	-7.47	4.86
C: 4 Not Replacement/ Not Absorption	16	8.54	7.46	6.52
Sum	75	75.00	0	15.52

H4c concerns the presence of a fit between the *replacement* MIS acquisition strategy and the *absorption* overall acquisition integration strategy. **Figure 72** displays the results of the χ^2 analysis. The low p-value ($p<.001$) suggests that there is a relationship between these two variables. There is a very low probability of the actual distribution being the same as the distribution we would expect if there is not such a relationship. This shows that there is evidence of the hypothesized fit, in support of H4c.

Hypothesis 5

Hypothesis 5 suggests a relationship between the MIS acquisition strategy and the acquisition type.

H5: The MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* will be related to the acquisition types of *unrelated*, *vertical*, *product extension*, *market extension*, and *horizontal*.

H5a: Among firms adopting an MIS acquisition strategy of *maintenance*, there will be a higher incidence of the *unrelated* and *vertical* acquisition types.

H5b: Among firms adopting an MIS acquisition strategy of *synthesis*, there will be a higher incidence of the *product extension* acquisition type.

H5c: Among firms adopting an MIS acquisition strategy of *replacement*, there will be a higher incidence of the *market extension* and *horizontal* acquisition types.

The actual distribution found is displayed in **Figure 73**, with the hypothesized "good fits" shaded. On inspection, the distribution does not appear to support H5.

Figure 73 Actual distribution - MIS acquisition strategies and acquisition types.

MIS Acquisition Strategies	Acquisition Type					
	Unrelated	Vertical	Product Extension	Market Extension	Horizontal	Totals
Maintenance	1	1	7	1	5	15
Synthesis	1	1	0	0	3	5
Replacement	2	2	8	11	32	55
Totals	4	4	15	12	40	75

Very few of the acquisitions in our sample were *unrelated* or *vertical* (4 each). The most frequently followed MIS acquisition strategy for these acquisitions was *replacement*, rather than *maintenance* as hypothesized in H5a. None of the 15 *product*

extension acquisitions followed a *synthesis* MIS acquisition strategy as hypothesized in H5b. Rather, they were almost evenly split between *maintenance* and *replacement*. Indeed, the most frequent acquisition type for acquisitions with a *maintenance* MIS acquisition strategy was *product extension* (7 of 15 responses). At first glance, there appears to be some support for H5c, concerning a fit between the *replacement* MIS acquisition strategy and the *market extension* and *horizontal* types of acquisitions. However, this is because of the dominance of *horizontal* acquisitions (40 of 75) and the *replacement* MIS acquisition strategy (55 of 75).

Figure 74 χ^2 analysis for hypothesis 5.

N=75	Chi-Square = 15.45 df = 14 p < .35			
	Observed H5_ACT	Expected H5_EXP	O - E	(O-E) **2/E
C: 1	1	.80	.20	.05
C: 2	1	.80	.20	.05
C: 3	7	3.00	4.00	5.33
C: 4	1	2.40	-1.40	.82
C: 5	5	8.00	-3.00	1.13
C: 6	1	.27	.73	2.02
C: 7	1	.27	.73	2.02
C: 8	0	1.00	-1.00	1.00
C: 9	0	.80	-.80	.80
C: 10	3	2.67	.33	.04
C: 11	2	2.93	-.93	.30
C: 12	2	2.93	-.93	.30
C: 13	8	11.00	-3.00	.82
C: 14	11	8.80	2.20	.55
C: 15	32	29.33	2.67	.24
Sum	75	75.00	.00	15.45

The χ^2 analysis is found in **Figure 74**. It resulted in a p-value ($p<.35$) that suggests that the actual distribution is not significantly different than what would be expected if there were no relationship between these variables. It does not support the contention that there is a pattern of fit between the MIS acquisition strategy and the acquisition type, leading us to reject H5.

Figure 75 χ^2 analysis for hypothesis 5c.

N=75	Chi-Square = 7.5797 df = 3 p < .055565			
	Observed H5c_Act	Expected H5c_Exp	O-E	(O-E) **2/E
C: 1 Replacement/ Market Extension & Horizontal	43	38.13	4.87	.62
C: 2 Replacement/ Other Type	12	16.86	-4.86	1.40
C: 3 Not Replacement/ Market Extension & Horizontal	9	13.87	-4.87	1.71
C: 4 Not Replacement/ Other Type	11	6.14	4.86	3.85

We examined H5c independently to see if there was a pattern of fit between the *replacement* MIS acquisition strategy and *market extension* and *horizontal* acquisitions. Results are shown in **Figure 75**. The resulting p-value (p<.056) is marginal in supporting H5c. This result, coupled with the failure of our previous analysis to support H5 in general, leads us to conclude that our results do not support H5c.

Hypothesis 6

Hypothesis 6 suggests a relationship between the MIS acquisition strategy and the goals of the acquisition, as discussed by Haspeslagh and Jemison (1991).

H6: The MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* will be related to the acquisition goals of *domain exploring*, *domain extending*, and *domain strengthening*.

H6a: Among firms adopting an MIS acquisition strategy of *maintenance*, there will be a higher incidence of the *domain exploring* acquisition goal.

H6b: Among firms adopting an MIS acquisition strategy of *synthesis*, there will be a higher incidence of the *domain extending* acquisition goal.

H6c: Among firms adopting an MIS acquisition strategy of *replacement*, there will be a higher incidence of the *domain strengthening* acquisition goal.

The actual distribution found is displayed in **Figure 76**. The distribution does not appear to support our hypothesis of a fit between these variables. Again, the *synthesis* MIS acquisition strategy is particularly problematic, with none of the responses considered a good fit in our analysis. The χ^2 analysis is displayed in **Figure 77**. The p-value ($p<.73$) indicates that there is not a systematic difference between the actual and observed distributions. If anything, there is more support that these distributions are similar. This leads us to reject H6.

Figure 76 Actual distribution - MIS acquisition strategies and acquisition goals.

MIS Acquisition Strategies	Acquisition Goal			
	Domain Exploring	Domain Extension	Domain Strengthening	Total
Maintenance	1	8	6	15
Synthesis	1	0	4	5
Replacement	3	23	29	55
Totals	5	31	39	75

Figure 77 χ^2 analysis for hypothesis 6.

N=75	Chi-Square = 5.221746 df = 8 p < .733627			
	observed H6_ACT	expected H6_EXP	O - E	(O-E)**2 /E
C: 1	1	1.00	0.00	0.00
C: 2	8	6.20	1.80	.52
C: 3	6	7.80	-1.80	.42
C: 4	1	.33	.67	1.33
C: 5	0	2.07	-2.07	2.07
C: 6	4	2.60	1.40	.75
C: 7	3	3.67	-.67	.12
C: 8	23	22.73	.27	.00
C: 9	29	28.60	.40	.01
Sum	75	75.00	.00	5.22

Hypothesis 7

Hypothesis 7 suggests that when there is a size mismatch between the firms, the parent firm will be less likely to choose the *synthesis* MIS acquisition strategy.

H7: In the event of a size mismatch, the MIS acquisition strategy is more likely to be *maintenance* or *replacement*, and less likely to be *synthesis*.

This hypothesis is difficult to test, however, because of the non-emergence of the *synthesis* strategy in the earlier analysis. Therefore, we display the actual distribution of cases based on these two variables, but do not submit it to a formal χ^2 analysis. The distribution appears to be consistent with our hypothesis, in that none of the

Figure 78 Actual distribution - MIS acquisition strategies and relative sizes of firms.

MIS Acquisition Strategy	Relative Size of Firms		
	Match	Mismatch (<2%)	Total
Maintenance	12	1	13
Synthesis	5	0	5
Replacement	38	12	50
Totals	55	13	68

acquisitions following the *synthesis* strategy were size mismatches. However, it does not provide statistical support.

Hypothesis 8

Hypothesis 8 suggests that the length of time to complete the integration will be longer in acquisitions following a *synthesis* strategy.

H8: The average length of time to complete the MIS integration will be longer in acquisitions following a *synthesis* MIS acquisition strategy.

Figure 79 shows that there is not a significant difference between the time taken to integrate when following a *synthesis* strategy (S_TIME) versus either *maintenance* (M_TIME) or *replacement* (R_TIME). H8, consequently, can be neither supported nor rejected. Because of the failure of the synthesis strategy to clearly emerge as a separate strategy in the earlier analyses, we cannot sufficiently test this hypothesis.

Figure 79 Independent sample t-test of average time taken to complete the MIS integration under different MIS acquisition strategies.

	Mean Group 1	Mean Group 2	t-value	df	p	Valid N Group 1	Valid N Group 2	Std.Dev. Group 1	Std.Dev. Group 2
S_TIME vs. M_TIME	10.8	8.0	.50	15	.63	5	12	9.4	11.0
S_TIME vs. R_TIME	10.8	10.1	.14	58	.89	5	55	9.41	9.9

Response Bias Testing

The first test for response bias involved comparing the "first wave" of responses (those received by June 9) with the "second wave" (received after June 9). The number of responses in each MIS acquisition strategy, by wave, is presented in **Figure 80**. A χ^2 analysis reveals that there was a systematic difference between the two groups of responses (χ^2=10.4, p<.016). The most obvious difference was that all responding firms which followed a "synthesis" strategy were in the first wave. This may indicate a high level of interest by MIS managers who have dealt with this difficult strategy. Additionally, 5 of the 6 "unknown" responses were received in the first wave. This is more difficult to interpret, but may similarly indicate a high level of interest among managers without a clear strategy for MIS following an acquisition. Dropping the "synthesis" and "unknown" responses from the analysis leaves two waves of responses which are much more similar.

Figure 80 Comparison of first and second wave responses.

MIS Acquisition Strategy	First Wave	Second Wave
Replacement	31	25
Maintenance	9	6
Synthesis	5	0
Unknown	5	1
Total	50	32

We were also able to compare those companies that responded to our inquiries with those who did not based on the revenue of the parent firm, as reported in *Mergers & Acquisitions*.[21] The results of this t-test are shown in **Figure 81**.

[21]Revenue figures for the responding firms from *Mergers & Acquisitions* were used rather than those reported on the survey instrument to be consistent with the source of

Figure 81 t-test for response bias based on parent size.

Size of Parent Firm (millions revenue)	Respondents			Non-Respondents				
	Valid N	Mean	Std Dev	Valid N	Mean (millions)	Std Dev	t-value	p value
	59	1,667	4,262	387	1,232	4,060	.76	.59

This test indicates that there does not appear to be a difference in the size of the parent firms ($p<.59$ that there is a difference). We were able to include a wide range of sizes of parent firms in our study.

Summary

The results presented in this chapter indicate some support for our model of MIS acquisition strategies. We can clearly identify firms following the *maintenance* and *replacement* strategies. The *synthesis* strategy proved more difficult to distinguish. Synergies from MIS are a significant factor in the choice of MIS acquisition strategy.

There appears to be a pattern of consistency between the MIS acquisition strategies and the overall acquisition integration strategies. Other features of the acquisition were not as significant. Based on known factors, our sample appears to be representative of firms that made publicly announced acquisitions in 1992.

Our next chapter discusses these results in detail and presents directions for future research.

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data used for the non-responding firms.

Chapter 6 - DISCUSSION AND CONCLUSIONS

Introduction

The results of this research indicate that examining corporate acquisitions from a functional perspective can provide additional insight into the strategies parent firms follow in integrating target firms. It extends the work of Haspeslagh and Jemison (1991) from a general management perspective to a functional MIS perspective.

The first section of this chapter summarizes the findings presented in Chapter 5. We then discuss our findings in detail. In the next section, we present implications for research and practice. The final section includes limitations of this study and concluding remarks.

Summary of Results

The statistical analysis in Chapter 5 leads us to the conclusions in **Figure 82**. The results are somewhat mixed. H1 received limited support. The scoring scheme was successful in categorizing most of the responses, but there were a few that were not classified. The model tested in H2 was supported on one dimension, synergies from MIS, but the second dimension of the model, capabilities of MIS in the acquired firm, did not withstand scrutiny. H3 found a high correlation between MIS synergies and the sharing of MIS resources. Hypotheses concerning the other sources of value creation were not

supported. H4 was partially supported. Firms were likely to follow an MIS acquisition strategy which was consistent with the overall acquisition integration strategy. When following an overall acquisition integration strategy of *preservation*, parent firms were very likely to follow an MIS integration strategy of *maintenance*. When following *absorption* at the overall level, they were very likely to follow a *replacement* strategy at the MIS level. H5, concerning acquisition types, and H6, concerning acquisition goals, were not supported. Our findings are consistent with H7; however, we cannot come to any firm conclusion because of the low number of responses in the *synthesis* strategy. This problem also affected H8 concerning the length of time to integrate information systems.

Figure 82 Summary of results.

H1	The strategies followed by MIS managers of acquiring firms when a corporate acquisition occurs can be categorized into three MIS acquisition strategies described as *maintenance*, *synthesis*, and *replacement*.	Limited Support
H2	The three MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* can be differentiated by the levels of *synergies from MIS* and the *capabilities of information systems in the acquired firm*.	Not supported, but MIS synergies is significant.
H3	The levels of synergies from MIS and the sources of value creation from MIS will be related.	Partial support
H3a	Those acquisitions that have high synergies from MIS will have value created from resource sharing within MIS.	Supported
H3b	Those acquisitions that have high synergies from MIS will have value created from functional skill transfer within MIS.	Not supported
H3c	Those acquisitions with low synergies from MIS will have value created from general management skill transfers within MIS.	Not supported
H3d	Those acquisitions with low synergies from MIS will have value created from combination benefits within MIS.	Not supported
H4	The MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* will be related to the overall acquisition integration strategies of *preservation*, *symbiosis*, and *absorption*.	Partial support
H4a	Among firms adopting an MIS acquisition strategy of *maintenance*, there will be a higher incidence of the *preservation* overall acquisition integration strategy.	Supported
H4b	Among firms adopting an MIS acquisition strategy of *synthesis*, there will be a higher incidence of the *symbiosis* overall acquisition integration strategy.	Not supported
H4c	Among firms adopting an MIS acquisition strategy of *replacement*, there will be a higher incidence of the *absorption* overall acquisition integration strategy.	Supported
H5	The MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* will be related to the acquisition types of *unrelated*, *vertical*, *product extension*, *market extension*, and *horizontal*.	Not supported
H6	The MIS acquisition strategies of *maintenance*, *synthesis*, and *replacement* will be related to the acquisition goals of *domain exploring*, *domain extending*, and *domain strengthening*.	Not supported
H7	In the event of a size mismatch, the MIS acquisition strategy is more likely to be *maintenance* or *replacement*, and less likely to be *synthesis*.	Findings consistent, but unable to test
H8	The average length of time to complete the MIS integration will be longer in acquisitions following a *synthesis* MIS acquisition strategy.	Unable to test

Discussion

Hypotheses 1 and 2

Hypotheses 1 and 2 concerned the classification of acquisitions into three MIS acquisition strategies, *maintenance*, *synthesis*, and *replacement*. The most striking of our results concerning these hypotheses are in two veins. First was the dominance of the *replacement* MIS acquisition strategy. Second was the failure of the *synthesis* strategy to emerge.

Dominance of the Replacement MIS Acquisition Strategy

Responses indicate that, in the majority of cases (56 of 82 - 68%), parent firms follow a *replacement* MIS acquisition strategy. This suggests that MIS is one area in which the parent firm dominates. One respondent commented:

> *As I have been involved with several of these acquisitions (from both sides) I have witnessed that the parent company always practices absorption. And even with this, the parent has little regard for the target's IT hardware and software. In all cases the parent was [going to] (or did) take over the target's IT functions.*

While this is not totally surprising, the extent of it is. However, previous research has often described the process of integrating information systems after an acquisition as if *replacement* was the only choice. Kubilus (1991a) describes a process by which all of the information systems will eventually be converted to those of the parent firm. The only question is how long the conversion will take place and which systems will take priority.

Linder (1989) describes an "ideal acquisition process" as one which is directed by the parent firm. A schedule for conversion of the target firm's data is set, and all information systems are converted. In our model of MIS acquisition strategies, the processes described by both Kubilus and Linder would be a *replacement*.

Where is the *Synthesis* Strategy?

The *synthesis* MIS acquisition strategy did not emerge in our analysis. We expected to find acquisitions in which the firms were evaluating the information systems in both firms, and determining which systems should be implemented in the combined firm. Our analysis did not find this *synthesis* strategy. In most instances, the parent firms do not appear to have spent time considering the acquired firm's information systems, but rather went ahead and replaced them with their own. Forty-one of 82 firms (50%) indicated "strongly disagree" to the statement "We evaluated which administrative information systems were best for the target firm." Twenty-nine of 82 (35%) responded similarly concerning operational information systems. Only 7 and 10 firms (9% and 12%), respectively, "strongly agreed" that such an evaluation had taken place.

This approach by the parent firms may have contributed to the low reliability of our factor "capabilities of MIS in the acquired firm." It appears that the quality of the acquired firms' information systems does not matter to the parent firms. Indeed, the parent firm most often does not even evaluate them. This attitude was expressed by one respondent:

[Target firm] was merged into and became part of [parent firm]. We have found that it is best to use our existing systems and not try to evaluate new systems.

On the other hand, our measurement of this factor may have contributed to its failure. We measured the capabilities of MIS in the acquired firm by using a set of three questions. The measurement of MIS capabilities and/or effectiveness alone has been the subject of an immense amount of research. Perhaps a more complex instrument is necessary.

By including only "acquisitions" and excluding those classified as "acquired unit" or "merger", we may also have unintentionally excluded firms that followed a *synthesis* strategy. In trying to keep the study simple, we limited our population to acquisitions of entire firms. Indeed, acquisition Y5, which was classified as *synthesis* in the case studies, was the acquisition of a unit from another company. Linder (1989) describes an integration process similar to our *synthesis* strategy as being ideal in a merger situation. While some research suggests that there is a dominant partner in most mergers, the actions of managers at the functional level may differ based on whether the transaction is viewed as an acquisition or a merger. In many instances, the term "merger" will be used rather than "acquisition" even though one partner is clearly dominant. There are, however, some transactions in which there may not be a clearly dominant partner. In such a merger of near equals, MIS managers may follow the *synthesis* strategy where the systems of both sides are evaluated, and the best of each is combined into a suite of information systems best suited to the combined firm. A follow-up study is planned to solicit responses from firms involved in these types of transaction.

Hypothesis 3

Our findings indicate a high correlation between synergies from MIS and resource sharing as a source of value creation (see **Figure 68**). Haspeslagh and Jemison (1991) argue that while all sources of value creation may be present in a given acquisition, one source may predominate. Resource sharing may be such a predominant source. To test for this possibility, we calculated paired t-test statistics comparing resource sharing with each of the other three sources of value creation. In each case, resource sharing is significantly higher than the other sources of value creation. **Figure 83** provides these results.

Figure 83 Sources of value creation - t-tests.

t-test for Dependent Samples N=82	Mean	Std. Dev.	Diff.	Std.Dv. Diff.	t	df	p
Resource Sharing	3.27	1.36					
Combination Benefits	2.55	1.08	.72	1.47	4.47	81	.000025
Resource Sharing	3.27	1.36					
General Management Skill Transfer	2.45	.81	.83	1.45	5.17	81	.000002
Resource Sharing	3.27	1.36					
Functional Skill Transfer	2.55	.79	.73	1.60	4.11	81	.000094

Our findings provide insight into the precise sources of savings in MIS by examining the specific questions for respondents following the *replacement* and *maintenance* strategies. As shown in **Figure 84**, computer operations was the most frequently cited source of savings, followed closely by data centers. Combining hardware only gained a "neutral" response with a mean of 2.83 (all responses were on a 5 point Likert-type scale). **Figure 85** displays a plot of these means. A multivariate analysis of variance indicates these factors are different between the two strategies (Wilkes Lambda=.66, p<.000004).

Figure 84 Means of specific questions regarding resource sharing.

Mean Responses	Overall	Replace-ment	Mainte-nance
Computer Operations	3.68	4.11	2.02
Data Center	3.35	3.73	2.00
Hardware	2.83	2.96	1.87

Figure 85 Plot of means of individual questions for resource sharing source of value creation.

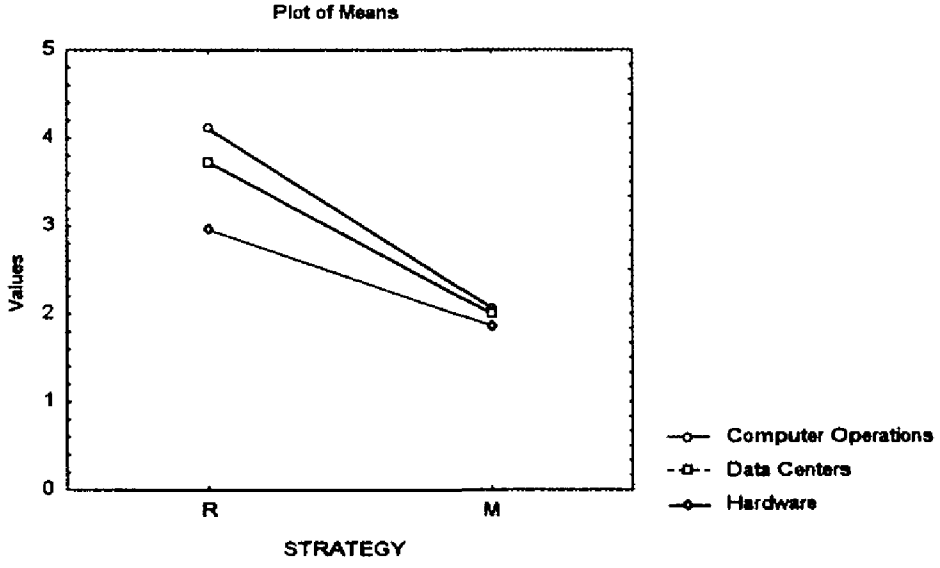
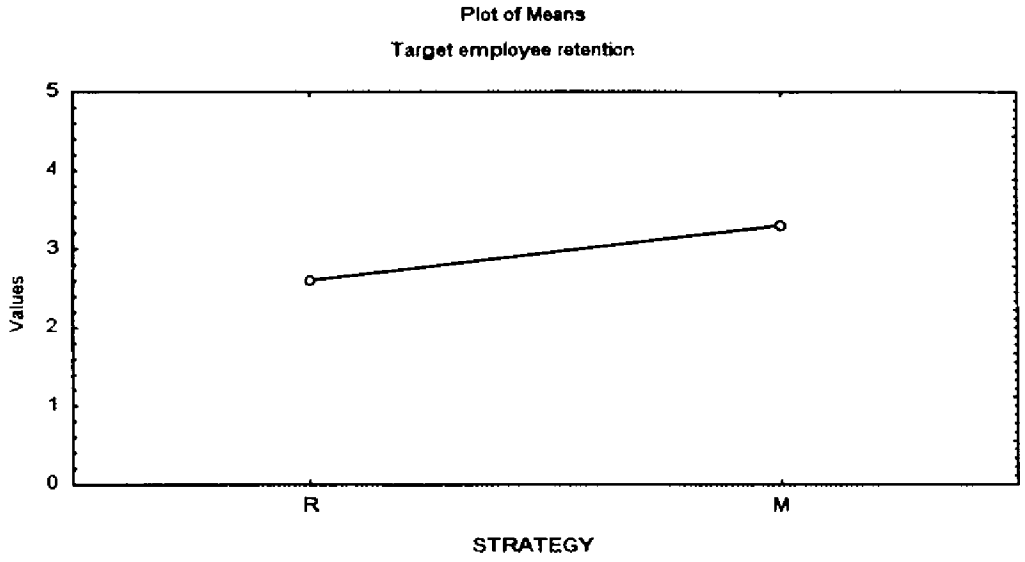


Figure 86 ANOVA of target employee retention for *maintenance* and *replacement* MIS acquisition strategies.

	df Effect	MS Effect	df Error	MS Error	F	p-level
Target Employee Retention	1	5.68	69	1.37	4.16	.045

The synergies do not appear to be attained by mass layoffs, although a one-way analysis of variance indicated that there were significant differences in the retention of the target firms' MIS personnel. The dependent variable was the level of employee retention, and the independent variable was the two MIS acquisition strategies, *maintenance* and *replacement*. Results are displayed in **Figure 86** and graphed in **Figure 87**. Under *replacement*, parent firms appear less likely to retain these employees. While there is a significant difference ($p<.045$), it is interesting to note that even among firms following a *replacement* strategy, the level of employee retention is still in the "neutral" range on the five point Likert-type scale (mean=2.61). For the *maintenance* strategy, the mean is higher, but also in the "neutral" range (mean=3.3). There does not appear to be a strong tendency toward layoffs of target MIS employees in either circumstance.

Figure 87 Plot of means, target employee retention.



Hypothesis 4

Our findings also indicate a strong relationship between the MIS acquisition strategies of *maintenance* and *replacement* and the overall integration strategies of *preservation* and *absorption*, respectively. If we consider firms that followed these two overall integration strategies, **83%** of firms (49 of 59) chose the MIS acquisition strategies we hypothesized as a "good fit."

We did not find the hypothesized association between the *symbiosis* overall integration strategy and the *synthesis* MIS integration strategy. Rather, we found that firms following symbiosis were most likely to follow a *replacement* strategy. This evidence is consistent with Carlyle's suggestion that MIS is often one of the first areas managers look to consolidate after an acquisition (1986). Even in firms which, from an

overall perspective, are gradually amalgamating the parent and target firms and trying to sustain the best of each, this approach does not extend to the MIS area. Haspeslagh and Jemison describe the symbiosis approach as the most difficult to pursue (1991). Our data suggest that, in this difficult situation, the parent firm is most likely to replace the target's information systems with its own. This may be an attempt to simplify a complex process. If we consider these three combinations, *maintenance* and *preservation*, *replacement* and *absorption*, and *replacement* and *symbiosis*, we can predict the MIS acquisition strategy, given the overall integration strategy, with **80%** accuracy (60 of 75 firms).

The support found for H4 is further evidence of the need for an alignment between information systems and the overall strategy of the firm. Chan and Huff (1993b) found similar support for the importance of consistency between a firm's strategic business orientation and its strategic orientation of information systems. Their study found such alignment to be more prevalent among higher performing organizations. While our study did not examine corporate performance or the success of the acquisitions, it does indicate that parent firms are more likely to choose an MIS acquisition strategy that is consistent with the overall acquisition integration strategy. A next step in this stream of research should be to examine the relationship between such an alignment and acquisition success.

Hypotheses 5 and 6

Hypotheses 5 and 6 suggested that the choice of MIS acquisition strategy would be influenced by the type of acquisition and the acquisition goal. Unlike H4, which found

a strong relationship between the overall acquisition integration strategy and the MIS acquisition strategy, these hypotheses were not supported by the data.

Hypothesis 5 suggested that because of dissimilarities in the types of businesses of the parent and target firms, vertical and unrelated acquisition types would be characterized by the *maintenance* MIS acquisition strategy. Likewise, because of similarities, horizontal and market extension acquisitions would be more likely to follow a *replacement* MIS acquisition strategy.

Product extension acquisitions had been hypothesized to be more likely to follow a synthesis MIS acquisition strategy. However, none of the 15 observations classified as product extension followed this expected pattern. Rather, the observations were almost evenly split between *maintenance* (7 observations) and *replacement* (8 observations). This reflects the diversity of product extension acquisitions. All other acquisition types were dominated by the *replacement* MIS acquisition strategy.

Hypothesis 6 suggested a relationship between the goals of the acquisition and the MIS acquisition strategy. Firms following an acquisition goal of domain exploring were expected to be most likely to follow a *maintenance* MIS acquisition strategy. Instead, the data reveals that most acquisitions (3 of 5 observations) with this goal follow a *replacement* MIS acquisition strategy. This combination was hypothesized to be a "poor fit" and thus least likely, the opposite of what was found. Similarly, among firms with an acquisition goal of domain extension, we hypothesized that the most likely MIS acquisition strategy would be *synthesis*. None of the observations follow this pattern. Again, most of these firms followed an MIS acquisition strategy of *replacement* (23 of 31

observations), with the remainder following *maintenance*. For the domain strengthening acquisition goal, all three MIS acquisition strategies were found, with most following *replacement* (29 of 39).

While it is tempting to suggest that a "good fit" has been found between each of the acquisition goals and the replacement MIS acquisition strategy, the χ^2 analysis does not support this conclusion. Because the replacement MIS acquisition strategy occurred so frequently, the actual distribution does not appear to be different than the expected distribution if there were no relationship between acquisition goals and MIS acquisition strategies.

The results of hypotheses 5 and 6, taken together with hypothesis 4, reveal an interesting pattern. The acquisition types and goals are not associated with any particular MIS acquisition strategy. We cannot make any prediction based on these two variables as to what will be done in the MIS area. However, there is a strong association between the overall acquisition integration strategy and the MIS acquisition strategy. This is particularly evident when the overall strategies are preservation, which is strongly associated with the *maintenance* MIS acquisition strategy, or absorption, which is strongly associated with the *replacement* MIS acquisition strategy.

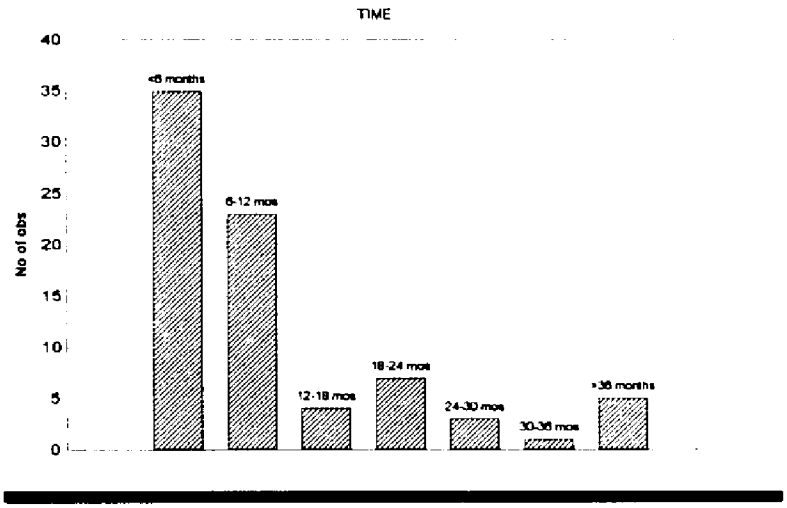
Hypotheses 7 and 8

For reasons discussed in Chapter 5, hypotheses 7 and 8 proved difficult to test. Even so, our results appear to be consistent with H7's assertion that when there is a size mismatch between the parent and target firms, the *synthesis* MIS acquisition strategy will

not be prevalent. Similarly, the data are consistent with H8's assertion that under the synthesis MIS acquisition strategy, integration of MIS will take longer to complete. However, because of the small number of firms classified as synthesis (5 of 82) and the failure of this MIS acquisition strategy to clearly emerge, H8 could not be sufficiently tested. We cannot therefore draw conclusions regarding the length of time taken to integrate MIS.

It is interesting to note, however, that the mean time to completion of the MIS integration process (for all firms) was 10.0 months (standard deviation=10.2). This is significantly lower than the three years suggested as average by Ball (1988). The high standard deviation suggests a wide range, but only five firms reported that the integration process was still in progress approximately three years after the acquisition. **Figure 88** displays the average time to complete the integration of MIS for all firms. These results could reflect that the *replacement* MIS acquisition strategy, which dominated our sample, occurs more quickly, which is consistent with H8.

Figure 88 Time to complete MIS integration for all firms.



Implications for Research and Practice

The intent of this research was to build on previous knowledge that has been developed regarding corporate acquisitions and management information systems. By reviewing previous work in both areas, an effort was made to adapt prior models to describe what occurred in the functional area of MIS organizations after an acquisition. The goal of this research was to provide insight to MIS managers and researchers on what occurs at the MIS level after an acquisition has taken place.

Implications for Research

Research on corporate acquisitions has thus far been dominated by two approaches. In one stream, researchers have examined financial outcomes and looked for patterns of abnormal returns, with mixed results. In the other stream, management researchers have begun to examine the acquisition process and attempted to identify different strategies or approaches taken by managers. This has provided additional insights, but has yet to yield a robust model which can be used by researchers. Our study has taken an additional step in this stream of research by examining closely the strategies followed in one functional area, MIS. This has provided additional insight into the acquisition process.

There is unlimited potential for research in the area of corporate acquisitions. The two research streams described above should gradually converge. Researchers need to combine analysis of financial outcomes with that of the acquisition process and identify key decision points. There is a need for additional means to determine the processes

followed in integrating corporate acquisitions, as well as measuring the effects of the acquisition itself and the subsequent choices by management.

We also must more clearly define what is meant by acquisition success. Ideally, financial analysis could identify above normal returns to stockholders. However, it is difficult to isolate the impact of the acquisition on stock prices. Previous research has eliminated firms that have made subsequent acquisitions (which is only one factor that may confound the impact of a particular acquisition) from analysis of stock returns. If we assume that firms in our study would continue to acquire additional firms at the same rate as they did in the years prior to 1992, this would necessitate eliminating approximately 85% of our sample. This does not appear to be a practical solution.

Acquisition success could be measured through perceptual measures as part of the survey. We would also need to differentiate between the overall success of the acquisition and acquisition success at the MIS level. These difficulties can, however, be addressed. We need to further consider measurements of MIS success at the firm level and determine whether these measures can be adapted to an acquisition situation. Additional insight into the success of acquisitions at any level would be a valuable contribution.

As with all our data, our inquiry concerning the synergies from MIS was collected on a post-hoc basis. Our questions address the synergies that had been experienced. However, decisions concerning the MIS acquisition strategy are clearly made before such savings are realized. This leads us to a research question concerning the *expected* synergies from MIS as opposed to the *actual* synergies from MIS. Are the expected synergies actually realized? It may be that a parent firm may have had high expectations

for synergies from MIS, but they were not realized. The parent firm may have chosen a *replacement* MIS acquisition strategy based on these expected synergies, but in hindsight it would have been better off choosing a different strategy. Our model, as it stands, does not address this issue. Such a study would ideally be conducted on a longitudinal basis, with the expectation of synergies from MIS measured at the time of the acquisition, and the actual synergies from MIS measured at a later time.

Implications for Practice

Information systems is one area in which the parent firm most often dominates the target firm after a corporate acquisition. Even in acquisitions in which the parent firm is gradually amalgamating the two organizations, the parent is likely to replace the target firm's information systems with its own.

It appears that parent firms have not yet moved beyond the idea of "taking for granted" the capabilities of their own MIS departments, as recommended by Calabrese (1991). One respondent commented:

> *Since the acquisition we have integrated our two companies' administrative and operational systems. No thought was given to this by management, but we had 2 weeks to do it.*

This attitude also appeared in our case studies.

> *After all, if you've got the best firefighters in the world, why should you spend time on that [information systems]? We've got a group of people that have*

gotten very good at sweeping up after elephants, and they [top executives] know that.

Information systems managers from parent firms should not take the results from this study as prescriptive. While we can say that a parent firm most often replaces the information systems of the target firm with its own, we cannot say that this is the best decision. Simply following the crowd may not be the best approach. We have yet to examine the impact of the choice of MIS acquisition strategy on the success of the acquisition. A model based on both research streams could be used by managers to determine the decisions most appropriate and those most likely to be successful.

Information system managers from target firms should take heed. While their jobs will not necessarily be eliminated, they will most likely change. Parent firms following a *replacement* MIS acquisition strategy are more likely not to retain MIS personnel from the target firm. Even so, there do not appear to be mass layoffs in this area.

Limitations of the Research

This research was based on data collected from one survey instrument which was completed by one individual in each responding firm. There is the potential for response bias because of the use of a single respondent. However, our results indicated that the respondents were, in most instances, highly involved in the acquisition process. This should contribute to the validity of their responses. There is also the potential in this type of research for a method bias. It is possible that parent firms who followed the

replacement strategy were more likely to respond to our inquiry. These managers may have felt more comfortable with their MIS acquisition strategy and thus been more likely to respond. The survey was rather lengthy (7 pages). This may have dissuaded some individuals from responding. There is also the potential for bias in that we only solicited responses from those companies we successfully contacted by telephone.

The survey instrument used was developed specifically for this study. While we built on the work of Haspeslagh and Jemison (1991), their research was based on a case study methodology. They were able to conduct many in-depth interviews with executives involved in the acquisitions. Much of management research in acquisitions has been based on a case study methodology (Haspeslagh and Jemison, 1991; Linder, 1989). This study built on these findings, and included a few in-depth case studies, which was followed by a mailed survey to a wide population. This process of conducting case studies to build theory, then testing it in a wider population follows the recommendations of many researchers for building robust theories (e.g., Yin, 1984).

One shortcoming which emerged was the failure of our instrument to measure the factor "capabilities of MIS in the acquired firm." This factor may exist, but we were unsuccessful in measuring it. It may not, on the other hand, be a distinct factor which influences the choice of MIS acquisition strategy. Without a valid measure, it is difficult to determine the impact of the capabilities of MIS in the acquired firm on this process.

We solicited responses from all parent firms involved in acquisitions which were publicly announced in 1992. This population may not be generalizable to transactions in other years or in other circumstances, although we have no indications that 1992 is

atypical for corporate acquisitions. As previously noted, we limited the study to "acquisitions," thus excluding "mergers" and "acquisitions of unit." This has undoubtedly influenced our findings. This study has been an important first step in examining what occurs in corporate acquisitions at a functional level. We cannot, however, generalize our findings to other types of transactions.

Concluding Remarks

Our original research questions asked:

1. *What are the different strategies followed by MIS managers of acquiring firms when a corporate acquisition occurs?*
2. *If different MIS acquisition strategies can be identified, can we identify an appropriate fit between particular MIS acquisition strategies and overall features of the acquisition?*

To address these questions, we reviewed appropriate literature in management, finance, and information systems. Based on this prior research, a theoretical framework was developed, and hypotheses derived. We then conducted a series of in-depth case studies, revised the framework, and administered a survey questionnaire to MIS managers with firms involved in corporate acquisitions.

We found strong evidence of at least two MIS acquisition strategies – *maintenance* and *replacement*. In most instances, the parent firm replaces the information systems of the acquired firm with its own. This is often done without clearly evaluating what is best for the target firm. Instead, parent firms tend to impose their own

information systems on the target firm. In other instances (though infrequent), the parent firm will not change the target firm's information systems, but choose to maintain them in their current condition. The target firm will continue to use its existing systems. A third MIS acquisition strategy – *synthesis* – may occur, but our results are inconclusive as to its existence.

Our second research question concerned identifying an appropriate fit between these MIS acquisition strategies and overall features of the acquisitions. In this study, fit was defined as the likelihood of occurrence. We hypothesized that certain combinations of MIS acquisition strategies and overall acquisition features would be most likely to occur. We found support for one such general feature, the overall acquisition integration strategy. We found a high level of consistency between the integration approach at the overall level and at the MIS level.

Corporate acquisitions are complex endeavors. Parent firms often go through many stages of evaluation before a deal is finalized. Once the acquisition is made, there are still many decisions as to the appropriate strategy to follow in integrating the acquired firm. This study has examined strategies followed in the MIS area. Building on previous research, it has attempted to gain an understanding of one small portion of the acquisition integration process.

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Appendix A

Case Study Report

for

Parent Firm X

Table of Contents

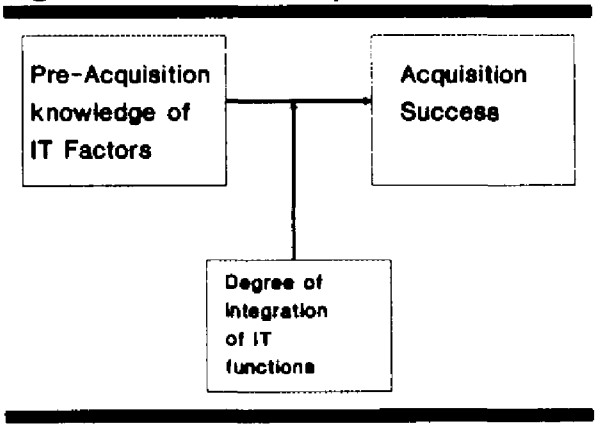
Introduction

This research project examines the role of management information systems in corporate acquisitions. The first step in this research was to conduct a series of interviews with MIS managers who had gone through multiple acquisitions. The researcher sought to identify issues addressed and approaches to the integration of information systems. Contacts were made with a large insurance firm, which agreed to participate. Interviews were conducted with the Executive Vice President of MIS, on March 24, 1994 and with the Chief Operating Officer and Chief Financial Officer of one of the business units, who had formerly served as Chief Information Officer, on June 21, 1994. This report is a summary of these findings from this firm, which we will refer to as Parent Firm X.

Overview

The initial focus of this study was to identify factors which contribute to the success of acquisitions, and determine whether knowledge of IT factors early in the acquisition process could increase the likelihood of success. A preliminary model, shown in **Figure 1**, was proposed.

Figure 1 Preliminary Model.



It suggested that knowledge of IT factors may contribute to the success of the IT function in the resultant firm, as well as the overall success of the acquisition. Questions were

asked about various acquisitions that had been made, the state of the acquired firm's IT prior to the acquisition, and how IT operations were affected by the acquisition.

In the course of this research, it quickly became apparent that the scope of this project needed to be significantly narrowed. Linking the knowledge of information systems gained in the due diligence process to the success of the acquisition, proved to be difficult. Through the interviews, it became apparent that many events occur after the due diligence process that can have a profound influence on the subsequent success of the acquisition.

Parent Firm X

A major reorganization, coupled with a series of acquisitions, has transformed Parent Firm X. This has changed the organization from a typical functional structure to strategic business units. The corporate strategy is diversification-related, with a stated desire to diversify from health insurance (which has gone from 100% of revenue to approximately 50%). Through a series of acquisitions, the company has diversified into other types of insurance and financial services. It has not ventured into areas it considers totally unrelated. Parent Firm X does not desire to become a conglomerate of companies providing dissimilar products. The business strategy is differentiation rather than low cost. While providing products at a competitive cost is a goal, Parent Firm X does not strive to become a low cost leader. Rather, it seeks to differentiate itself with superior customer

service. The target market is focused on small to medium sized companies (less than 1000 employees) which make up the bulk of its customer base. This is seen as a growth area.

All the acquisitions Parent Firm X has made have been planned, not opportunistic, with one major exception. The exception occurred when Acquisition X4 approached Parent Firm X about joining forces. This acquisition is typically referred to as a merger by executives, and is viewed differently, even though Parent Firm X maintained a dominant management position. The company's corporate mission precludes pursuing hostile takeovers. A significant effort is made to ensure that acquisitions are friendly. The top executives in the acquired firms are made very visible, and become spokespersons to the employees of the acquired firm. Parent Firm X's top management makes it advantageous for them to stay on with the company.

Acquisitions are made at multiple corporate levels. Some acquisitions are made by Parent Firm X, while smaller ones are executed by one of the strategic business units.

Parent Firm X's general approach to an acquisition is to go slow and allow time to gain an understanding of how the business operates. This process frequently reveals changes that need to be made and areas in which the target could operate more efficiently. Typically, after an acquisition, employees of the acquired firm are assured of job stability.

Information Systems

Parent Firm X is quite proud of progress it has made in the area of information systems. In the 1980s, it went through a major reassessment of its technology, which

resulted in a migration from a purely IBM mainframe shop to multiple smaller platforms. This has reduced IS related expenses from 25% of total corporate expenses to approximately 11% while maintaining similar or higher levels of service. The IS organization, once highly centralized, is trending toward decentralization. Future applications are higher in strategic impact on the firm than the existing portfolio. The company sees information technology as a tool that can potentially transform how it, as well as the industry, operates. It is commited to such a "Vision to Transform" (Schein, 1992). This use of technology is completely driven by the business plan (7 on a scale of 1-7). One executive stated *"[Parent Firm X] in general always had a fairly progressive approach to how you use systems as opposed to letting systems use you."*

While information systems is a portion of the due diligence process for all acquisitions, it is not a major consideration. One executive estimated that out of eight hours of negotiation, information systems may be the subject of discussion for fifteen minutes. The attitude of the IS executives is very positive or "can-do." One made the following comment:

> *After all, if you've got the best firefighters in the world, why should you spend time on that [information systems]? We've got a group of people that have gotten very good at sweeping up after elephants, and they [top executives] know that.*

At the same time, executives realize that knowledge of a target organization's information systems can provide valuable insight into its operations. For the due diligence, teams of individuals go into a target company and look at the various functional areas. Frequent meetings between the teams are held to coordinate actions and integrate information.

Different application areas are examined. It is common to find a target firm using the same software, particularly when it is in health and life insurance.

Information technology is not usually considered to be a make-or-break issue in an acquisition. It is possible, if a target company's information technology was found to be extremely deficient, it might break the deal, but that is considered to be unlikely. Rather, the assessment of the target firm's information technology is an important consideration when it comes to the price to be paid for the target firm. An estimate is made of the investment in information technology required to bring the target up to the desired level, and this figure reduces the purchase price. They also examine the quality of the target firm's information technology in relation to the industry. For example, Acquisition X2's use of information technology was not as advanced, but was good in comparison to other brokerage operations.

Executives at Parent Firm X realize that acquisitions are not without problems. One stated:

> *There are always logistical problems. Always situation problems. There's always some personnel problems. Market and distribution problems. But nothing that was insurmountable.*

Executives were also asked to rate the importance of knowledge in several different areas of MIS before and after the acquisition was completed (Calabrese, 1991). The following table indicates the level of importance ascribed to these different areas

(1 not at all important 7=very important, we always do a complete review)

	Importance of IS Knowledge	
	Prior to acquisition	After acquisition
Technology assets	7	7
Management processes	4 to 5	5 to 6
Personnel *(Mgmt)*	6 or 7	6 or 7
(Rank & File)	2	3 or 4
Application system portfolio	6	6
External financing	7	7
External sourcing	6	6
Operating costs	5	6
Information systems scope	5	6
Liaison and communication functions	4	5
Performance management capabilities.	6	7
Other IS factors: *Training* *Philosophy* *Extent to which business plan drives the IS plan*		

Additions made by Parent Firm X executives are italicized. Under personnel, a distinction is made between managers, knowledge of whom is considered important before the acquisition, and the rank and file workers, knowledge of whom is not considered to be vital, but gains in importance once the acquisition is finalized. Additional factors included training, philosophy, and the extent to which the business plan drives the IS plan. The importance of looking at IS training was pointed out by one executive in saying:

> *For the other IS factors, I would just look at training. What's their philosophical attitude toward systems in general which may be with personnel. But I certainly look at their philosophical approach to systems. And then the other thing that I would say is what types of effective training mechanisms do they have in place to have perpetual knowledge, constant knowledge within the company.*

And then, this would come under philosophy too, the extent to which they really match the technology to the business direction of the corporation. We've found in many companies that we've looked at for acquisition that [the] systems group had no clue what the business strategy was. Really didn't know what markets or services they were in. Didn't know who their customers were.

That was often a question we would ask systems people. Who's your major competition? What systems do they have? And they often couldn't even tell us who the competition was. If the systems people don't know that, then often a lot of other people in the company don't know. Then, it's an acquisition opportunity that you walk away from. It's never just isolated to IS, but you certainly look at a shop where the IS direction is a function of the business direction and not being developed completely independent.

Specific Acquisitions

Three acquisitions to be discussed in detail are Acquisition X1, Acquisition X2, and Acquisition X3.

Acquisition X1

Acquisition X1 was a market extension acquisition. It was a health insurance company located in a city approximately 900 miles from Parent Firm X's headquarters (referred to as City X1), and was acquired in 1991. The strategic goal of the acquisition was to strengthen Parent Firm X's position in the domain of health and life insurance. The information systems of this operation, which had been administered by a centralized group at Acquisition X1, have been consolidated with the parent company. First, the data centers were consolidated with those in Parent Firm X's headquarters. Considerable savings were achieved, even more than anticipated. This indicates high levels of synergies from information systems. All of the Acquisition X1's General software systems are being

retired and are being replaced by Parent firm X systems. The integration process is still in progress, as of mid-1994, three years after the acquisition. The integration of software applications for policy administration has proved to be a difficult process, and has taken much more time and effort than originally anticipated. The degree of effort required has been so significant, that executives have become extremely cautious about consolidating operational software for subsequent acquisitions.

The general integration process was characterized as symbiotic. Significant benefits resulted from the combined size of the organizations, the sharing of resources, and functional skill transfers. The acquisition, from an overall perspective, has been highly successful (6 on a scale of 1-7). From an MIS perspective it has also been highly successful (6 on a scale of 1-7). The level of software integration is extremely high (7 on a scale of 1-7).

Acquisition X2

Acquisition X2 was a product extension acquisition. It was a brokerage operation, based in a state adjacent to Parent Firm X's headquarters, with offices throughout the geographic region. It was acquired in 1991. Some problems were encountered in the MIS area because Acquisition X2's systems were quite different, both in terms of hardware and software, from those used by Parent Firm X. The systems were administered by a centralized IS organization at Acquisition X2 prior to the acquisition. After the acquisition, financial systems were consolidated first. Operational software

systems were not integrated on existing systems because the products sold were quite different. Some operational software under development at Parent Firm X was adapted to meet Acquisition X2's needs. The level of software integration is 3.5 (on a scale of 1-7). The strategic goal of this acquisition was primarily domain exploring, and also domain strengthening. The general integration process was symbiotic. The Acquisition X2 organization has been remolded into the strategic business units. Benefits were realized from resource sharing and function skill transfers. There were some synergeies, but not to the extent as at Acquisition X1. The acquisition, from an overall perspective, has been successful, but with some problems (5 on a scale of 1-7). From an MIS perspective, its success rating is 4 on a scale of 1-7.

Acquisition X3

Acquisition X3 was an unrelated acquisition, in that it extended both the product and market of Parent Firm X. This was the parent firm's first foray into the property and casualty insurance market. It was acquired in 1991 and was based and operated only in a state adjacent to Parent Firm X's headquarters. Its operations have been preserved intact, with benefits coming from functional skill transfer and sharing of general management skills. The MIS functions, which were and remain highly centralized within Acquisition X3, are separate from the parent firm. The strategic goal of this acquisition was primarily domain exploring. It could also be seen as domain strengthening if one looked at it as strengthening Parent Firm X's position in the entire insurance market. No significant

synergies were realized from this acquisition. The level of software integration is very low (1 on a scale of 1-7). Acquisition X3's MIS capabilities were high prior to the acquisition. The general integration approach was symbiotic. The success of this acquisition from an overall perspective is 6 (on a scale of 1-7). From an MIS perspective, the success is 5 (on a scale of 1-7).

Conclusions

This case study, along with others, led the researcher to narrow the focus of this research to identifying *MIS acquisition strategies*. These are general approaches taken by MIS executives of the parent (acquiring) firm toward the information systems of the target (acquired) firm. **Figure 2** shows the model of MIS acquisition strategies we are proposing. It is based on research models from strategic management and information systems. It suggests that the basic strategies followed by MIS managers differ on two dimensions, the *Synergies from MIS* and the *Capability of Information Systems in the Acquired Firm.*

Figure 2 Model of MIS acquisition strategies.

		Synergies from MIS	
		Low	High
Capability of Information Systems in the Acquired Firm	High	1. Maintenance	2. Synthesis
	Low	(Upgrade)	3. Replacement

It is clear from the previous discussion that Parent Firm X does not have a single approach to making acquisitions. Rather, it tailors its approach to the target firm. These three acquisitions fit the model proposed in **Figure 2** quite well. The following table shows the MIS acquisition strategy of each of these transactions.

Acquisition	MIS Acquisition Strategy	Reasons
Acquisition X1	Replacement	All systems have been converted over to Parent Firm X Systems. High synergies were realized from sharing of resources and functional skill transfers.
Acquisition X2	Synthesis	Financial systems were integrated first. Some operational systems followed, with significant changes made to systems in development to accommodate needs of target firm. Some synergies have been realized. Capabilities of MIS prior to the acquisition were high relative to the brokerage industry, but lower than those to which parent firm was accustomed.
Acquisition X3	Maintenance	Existing systems have been maintained. Acquisition X3 was perceived as having highly capable information systems. Expected synergies were low.

It is also important to examine how these MIS acquisition strategies varied according to features of the acquisition itself. When making a horizontal acquisition (Acquisition X1), Parent Firm X followed an MIS acquisition strategy of replacement. It could be that because of the similarities of these organizations, Parent Firm X felt it could replace the current information systems with its own. When making a product extension acquisition (Acquisition X2), this was not the case. The business was sufficiently different that systems under development were adapted to meet the needs of this firm. When making an unrelated acquisition (Acquisition X3), the existing systems were maintained. Following is a chart summarizing the MIS acquisition strategy and various acquisition features.

Acquisition	MIS Acquisition Strategy	Overall Integration Strategy	Acquisition Type	Acquisition Goals	Level of S/W Integration *(1 to 7 scale)*	Overall Success *(1 to 7 scale)*	MIS Success *(1 to 7 scale)*
Acquisition X1	Replacement	Symbiosis	Market extension	Domain strengthening	7	6	6
Acquisition X2	Synthesis	Symbiosis	Product extension	Domain exploring and domain strengthening	3.5	5	4
Acquisition X3	Maintenance	Symbiosis	Unrelated	Domain exploring and domain strengthening	1	6	5

Appendix B

Case Study Report

for

Parent Firm Y

Table of Contents

Information Systems and Corporate Acquisitions

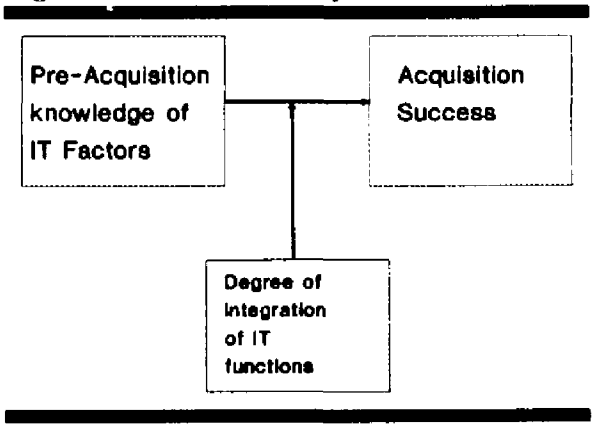
Introduction

This research project examines the role of management information systems in corporate acquisitions. The first step in this research was to conduct a series of interviews with MIS managers who had gone through multiple acquisitions. The researcher sought to identify issues addressed and approaches to the integration of information systems. Interviews were conducted with Parent Firm Y executives on March 8, 1994 and April 28, 1994. This report is a summary of these findings from Parent Firm Y.

Overview

The initial focus of this study was to identify factors which contribute to the success of acquisitions, and determine whether knowledge of IT factors early in the acquisition process could increase the likelihood of success. A preliminary model, shown in **Figure 1**, was proposed.

Figure 1 Preliminary Model.



It suggested that knowledge of IT factors may contribute to the success of the IT function in the resultant firm, as well as the overall success of the acquisition. Questions were asked about various acquisitions that had been made, the state of the acquired firm's IT prior to the acquisition, and how IT operations were affected by the acquisition.

In the course of this research, it quickly became apparent that the scope of this project needed to be significantly narrowed. Linking the knowledge of information systems gained in the due diligence process to the success of the acquisition, proved to be difficult. Through the interviews, it became apparent that many events occur after the due diligence process that can have a profound influence on the subsequent success of the acquisition.

Parent Firm Y

Introduction

Parent Firm Y has risen from a start-up company in fifteen years ago to a position of leadership in the insurance industry. Its basic strategy has been to buy existing insurance companies and then run them more efficiently. This has proved to be very successful, producing record gains.

Parent Firm Y considers itself to be an asset accumulation company. It is in the business of making acquisitions. The emphasis in decision making is on bottom line performance, often measured by payback period. This philosophy seems to pervade the organization. Efficiency and profitability are of prime importance. The firm does not have a long-range business plan, but prides itself on the concepts of simplicity and flexibility. One executive reflected:

> *Our philosophy is that the simpler we keep it, the easier changes are going to be, because we don't know exactly what we're going to be doing in the long run.*

Parent Firm Y has formed a partnership to make additional acquisitions. As of spring 1994, it has approximately $600 million at its disposal. This amount can be leveraged at approximately 10 to 1. Parent Firm Y clearly intends to make additional acquisitions. The headquarters facility includes space for future growth. The fiber optic backbone is designed to accommodate future data processing needs.

During 1994, Parent Firm Y expended a major effort in a failed acquisition bid. The interviews upon which this report is based were conducted just prior to news of those

negotiations. Therefore, the following discussion does not include data on that aborted transaction.

The first acquisitions made were horizontal in nature. The company then branched out into market and product extension acquisitions. One small vertical acquisition was made. While unrelated acquisitions have not been made to date, they would not be ruled out, and are likely to occur in the future. This is consistent with the corporate level strategy of related diversification. None of the acquisitions have been hostile in nature. Several interviewees, however, noted that there is always some degree of hostility displayed by employees of the acquired firm.

Organizational Characteristics

The overall structure of the organization is mixed. Those acquisitions that have been consolidated are organized in a traditional "process functional" manner. Those firms that are not yet consolidated are temporarily treated as strategic business units. If they continue to operate efficiently, they may be allowed to continue operating separately.

A great degree of emphasis is placed on lowering costs and improving efficiency. The general business level strategy is one of low cost. As one individual stated:

> *We aggressively manage our costs. We push vendors to lower costs. We have the lowest DP costs of any company like ours.*

And another:

> *We figured one time that if I had kept all the people from acquisitions, I'd have 62 people [working in my division]. I've got 12.*

Parent Firm Y considers itself lucky in that, because it is a young company, it does not have a legacy of systems and of people. In the words of one executive:

> *[Parent Firm Y] has the luxury of being a young company. We're not burdened with systems and legacy. Most companies are burdened with legacy systems and people. [In other companies] historically, it's taken so many people to do a job, and it's really hard to get rid of those positions.*

Indeed, the general attitude of executives at Parent Firm Y could be characterized as "driven" and "can-do". When asked how an acquisition was determined to be successful, the following answer was typical:

> *Failure is not an option. We do whatever it takes to meet whatever deadlines we've got.*

Data Processing

The data processing organization consists of 135 people and has an annual budget of $12 million. The structure of the data processing department is federal, with some groups more decentralized than others. The Management of Technology functions (computer operations, communications/networking, emerging technologies, and planning-technology) are highly centralized. The Management of Use of Technology functions (systems development, end-user support, and planning - applications) are in some cases decentralized to subsidiaries. An example of this is Acquisition Y5, in which the applications group is located in Acquisition Y5's home city.

Information systems are not considered a make-or-break factor in an acquisition, although it is not unimportant. Executives consider Parent Firm Y's skill level and

experience in dealing with information systems following an acquisition to be superior, and feel confident that any situation that arises will be dealt with successfully. The most important purpose of the detailed review that is made during the due diligence process is to provide information that is used in negotiating the purchase price. Any deficiencies that are found are deducted from the price offered.

The Integration Process

Three functions are always consolidated following an acquisition. These are corporate accounting, the data center, and investments. These three functions are pulled in to Parent Firm Y's headquarters.

Parent Firm Y typically follows a three stage process in addressing information systems in an acquired firm. The stages are:

1. When a deal is first proposed, top management makes a quick assessment. Shortly thereafter, a team of ten to twelve data processing personnel go into the target firm and make a detailed assessment. These two steps constitute the due diligence process.
2. The data centers are consolidated. Computer operations are moved to Parent Firm Y's headquarters. This usually occurs within two to four months of finalizing the deal.
3. Software applications are converted. This involves converting acquired company applications over to Parent Firm Y systems, and may take one to

three years to complete. The decision to convert applications is made on a payback period basis, with two to three years desired. Although all acquisitions to date have been converted, this is a zero based decision. In the words of one executive:

> *We've always decided 'yes' to convert, but it may not always be that way.*[1]

One factor considered very important in the due diligence process is collecting up-to-date information about the target firm's licensing arrangements. Any license fees that need to be updated are deducted from the offered price. As one executive stated:

> *We also want to know about software licenses. We make sure they are legal. Sometimes we have found that there were oversights. We do what we need to do to rectify it. We have to figure what the cost will be to make them legal. We can't plead ignorance on this. But then that cost will come off the purchase price. It's a balancing process. It's kind of like a bucket. We find things to put it in our favor, and at the same time they're figuring out things that would increase the price. We find things that knock it down, and then they might add a few things to their side. If it's going to take $1 million to make them legal, then that comes off.*

Determining the ownership and licensing of all hardware and software in the target firm's possession can be a difficult process, particularly when the target firm is part of a larger organization, such as a holding company. Lease agreements are examined in detail to

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[1] In fact, steps two and three of this process were not followed for the Acquisition Y6 acquisition. During interviews, executives routinely excluded Acquisition Y6 from the discussion until prompted by the researcher. This was apparently because it was a small acquisition in comparison to others, and it is not involved in the same types of business activities.

ascertain precise ownership. This aspect of Acquisition Y5 acquisition was particularly arduous.

Data Center Consolidation

In consolidating the data center, Parent Firm Y follows the highly centralized nature of its *Management of Technology* functions, which includes telecommunications and networking, computer operations, emerging technologies, and technology planning. All hardware is housed in the headquarters offices. In the words of one executive:

A subsidiary has printers and phone lines. That's it. That's all they need.

Executives concede that future acquisitions may not follow this pattern. To do to date, all acquisitions (except Acquisition Y6) have had data centers consolidated soon after the deal was closed. This is usually accomplished within 90 days.

Approaches to Integrating the Data Center

Parent Firm Y has several basic approaches to consolidating the data center. The first approach is called a "milk run" by one executive. In this situation, a team goes to the site of the acquired company's computer operations, three sets of backups are made, the hardware is shipped to headquarters, and the system is reinstalled. An example of this approach is Acquisition Y3. This is considered the easiest approach, and it can be accomplished in approximately 30 days. There are many situations in which this approach

is not possible. This is the case if the acquisition is very large or if there is a holding company involved.

When a holding company is involved, it is necessary to extract those systems that are part of the acquisition. This can sometimes be a very involved process. It can be difficult to identify clear ownership of the hardware, software and the data. An extraction can take up to one year, as evident in the example of Acquisition Y5.

A third approach occurs when the target firm is running hardware considered to be too expensive. Parent Firm Y tends to use older hardware because of the cost savings that can be realized. In this situation, the target's hardware environment will be duplicated in headquarters using more cost effective equipment, a team will go out, make three sets of backups of the software and data, bring it back and set it up to run on the cheaper hardware. An example of this approach is Acquisition Y4.

In discussing the consolidation of data centers, one executive noted:

> *I like to use the analogy that we bring it here and put it on life support until we can do the transplant. Once we've got it here, then we can look at integrating into systems we already have. We want to minimize the number of different systems we're running. It's a cost driven thing. Everything is cost driven.*

Specific Acquisitions

Acquisition Y1

Acquisition Y1 was a product extension acquisition which moved Parent Firm Y into annuities. It was acquired in 1987. After the acquisition, existing hardware was moved to headquarters. Acquisition Y1's application group remained in its home city and handled the annuities business of Parent Firm Y. This group was under the management of Parent Firm Y's headquarters. In 1994, Acquisition Y1 is being spun off in a public offering. Their, now separate, data processing operation is based in a city distant from Parent Firm Y's headquarters, although Parent Firm Y continues to service some functions for Acquisition Y1. Acquisition Y1's operations prior to the acquisition were very stable and stagnant. Parent Firm Y was able to achieve significant cost savings in the data processing area.

Acquisition Y2

Acquisition Y2 was a horizontal acquisition made in 1990. It was primarily an annuity company. All of its data processing operations were moved to headquarters. New people were hired and trained to sustain this operation. Administrative and operational applications were converted to Parent Firm Y systems as quickly as possible. The integration of policy administration software was particularly difficult because of the range of products Acquisition Y2 had offered.

An example of the type of cost savings Parent Firm Y achieves is evident in that prior to the acquisition, Acquisition Y2 had approximately twelve people devoted to operations support. This is now being done by three people. This savings of nine salaries contributes directly to bottom line profits.

Acquisition Y3

Acquisition Y3 was a horizontal acquisition made in 1990. It was somewhat different in that it was located within 20 miles of Parent Firm Y's headquarters and many of the employees were retained. This also necessitated a significant cultural integration phase. The consolidation of its data center followed a "milk run" model in that the hardware was loaded onto trucks, moved to the headquarters, and reassembled.

Acquisition Y4

Acquisition Y4 was a horizontal acquisition made in 1991. Its operations were moved to headquarters, but Parent Firm Y considered its hardware to be excessively expensive to operate. Other, less expensive hardware was acquired, and the applications were moved to the cheaper platforms. The applications administration was consolidated with Acquisition Y1's operation. Since Acquisition Y1 has been spun off, this function has been moved to Parent Firm Y's headquarters.

Acquisition Y5

Acquisition Y5 was a particularly complex venture. It was a product extension acquisition made in 1992, and represented a move into the health care insurance industry. One factor that made it particularly complex was that there were license holders and owners were divided into three groups. First, some of the software had been developed by Acquisition Y5 for its own use. Secondly, they had outsourced the operation of their systems to a consulting group. The consulting group had developed some software for them, and held some of the licenses. Thirdly, Acquisition Y5 had been owned by another parent (Parent Y5). A partnership had been set up between Parent Y5 and Acquisition Y5 which held licenses to much of the software. The ownership of these applications was not clear cut, and had to be negotiated. It was also difficult to determine how these applications interacted, and the precise ownership of data.

Acquisition Y6

Acquisition Y6 was a rather small acquisition for Parent Firm Y, made in 1993. It serves as a middle man selling Parent Firm Y products to financial institutions, and therefore was a vertical acquisition. Its operations are quite different from other Parent Firm Y acquisitions. It is a small operation, with approximately seventy employees in the back office, including four devoted to information systems. Its information systems are PC/LAN based. The integration approach to Acquisition Y6 was summed up by one executive in saying:

We've tried to [Parent Firm Y]-ize them, but I'm not sure how hard we've tried. There are reports every two weeks, but we have recommendation authority only. We use DP for cost effectiveness. [Acquisition Y6] uses it as a competitive advantage. It would be bad for us to try to bring them in. It wouldn't be to their advantage.

Conclusion

This case study, along with others, led the researcher to narrow the focus of this research to identifying *MIS acquisition strategies*. These are general approaches taken by MIS executives of the parent (acquiring) firm toward the information systems of the target (acquired) firm. **Figure 2** shows the model of MIS acquisition strategies we are proposing. It is based on research models from strategic management and information systems. It suggests that the basic strategies followed by MIS managers differ on two dimensions, the *Synergies from MIS* and the *Capability of Information Systems in the Acquired Firm.*

Figure 2 Model of MIS acquisition strategies.

		Synergies from MIS	
		Low	High
Capability of Information Systems in the Acquired Firm	High	1. Maintenance	2. Synthesis
	Low	(Upgrade)	3. Replacement

In situations where the acquiring firm does not experience significant savings from information systems and when the capabilities of information systems in the acquired firm are high, the MIS acquisition strategy would be *maintenance*. If any integration were to occur, it would be only at the administrative level and consist of financial reporting

systems. There would not be extensive sharing of information systems resources, such as combining of hardware. These conditions occurred with the Acquisition Y6 acquisition.

In situations where both the capabilities of information systems in the acquired firm and the synergies from MIS are high, the MIS acquisition strategy would be *synthesis*. The acquiring firm would seek to use the best of each firm's information systems and combine them. Administrative systems may be integrated on the acquiring firm's systems, but analysis would be performed to determine if the existing administrative systems were appropriate, with appropriate changes made to accommodate the acquired firm. New, integrated systems would be developed at the operational level. This type strategy was followed in Acquisitions Y1 and Y5.

In situations where the capabilities of information systems in the acquired firm are low, and the synergies from MIS are high, the MIS acquisition strategy would be *replacement*. The acquiring firm would seek to replace the acquired firm's information systems with its own. Hardware would be combined and the acquired firm would be converted to the parent's information systems at the administrative and operational levels. Changes to operational systems in order to accommodate the acquired firm would be minimal. Changes to administrative systems would be even less likely. This type of MIS acquisition strategy was followed in Acquisitions Y2, Y3, and Y4.

It is clear from the previous discussion that Parent Firm Y does not have a single approach to making acquisitions. Rather, it tailors its approach to the target firm. The acquisitions discussed fit the model proposed in **Figure 2** quite well. In fact, the

discussions with Parent Firm Y executives contributed to this model. The following table shows the MIS acquisition strategy of each of these transactions.

Figure 3 Summary of findings from Parent Firm Y

Acquisition	Year	Type	MIS Acquisition Strategy	Reasons
Acquisition Y1	1987	Product Extension	Synthesis	Separate data center maintained in a distant city to handle the annuity business.
Acquisition Y2	1990	Horizontal	Replacement	All operations moved to headquarters. New people trained to operate these systems.
Acquisition Y3	1990	Horizontal	Replacement	All operations moved to headquarters. Since Acquisition Y3 was geographically located within 20 miles of headquarters, many employees were retained.
Acquisition Y4	1991	Horizontal	Replacement	All operations moved to headquarters.
Acquisition Y5	1992	Product Extension	Synthesis	Data center moved to headquarters. Applications group maintained in offices in Acquisition Y5's city. This was considered necessary because of the different type of business focus (health). In addition, Acquisition Y5 was considered to be doing an effective job with data processing.
Acquisition Y6	1993	Vertical	Maintenance	Acquisition Y6 systems are maintained separately. They are LAN based. Financial reporting is integrated, but operational systems are totally separate.

Appendix C

Script for Telephone Contacts

Note: The phone number I have is a general corporate number. This may or may not be the correct location.

If you are making calls from school, the access code is _____.

1. *Hello Is this the _____ company?*

   a. **If response is NO.**
   I am trying to locate _____ company. Do you have any information about this company? Do you have their phone number?
   b. **If response is YES.**
   Information Systems Department, please.

2. *I am calling on behalf of Indiana University. Could you tell me who is the executive in charge of your information systems?*

   a. **Do you have the person's name/title yet? If not...**
      i. *Indiana University is conducting a study on Information Systems and Corporate Acquisitions. We would like to invite the person who is in charge of information systems in your firm to be a member of our Information Systems and Corporate Acquisitions Study Team.*

      Do you have the person's name/title yet? If not...
      ii. *We have selected approximately 750 MIS managers throughout the country to be invited to be part of the team. Each member will simply respond to a questionnaire about an acquisition their company made in 1992. Each member will then receive the Indiana University Information Systems and Corporate Acquisitions Report.*

      Do you have the person's name/title yet? If not...
      iii. *The Indiana University Information Systems and Corporate Acquisitions Report will be a summary of the team members' responses. Each individual response will be confidential. They will be reported only in*

summary form along with responses from the other team members. When their corporate considers future acquisitions, the Indiana University Information Systems and Corporate Acquisitions Report will be a useful tool for you to have.

b. *Is s/he at _____ address?*

i. **Confirm address on disposition sheet.**

3. *Thank you.*

Things to avoid:

The word "SURVEY" seems to be a big turnoff. Use "STUDY" instead. Also, refer to "being part of our study team".

Don't give more info than you have to! Remember...there are 753 of these companies to call, and the quicker we get them made the better.

Use "Corporate Acquisitions" not "mergers & acquisitions."

Situations that come up:

Receptionist doesn't know what department this should be

I'd like to talk to the department that runs the computers that you use in the company.

Or

the Computer department?

Or

The people who run your computers?

You get immediately connected to the top person (which happens in small firms, they may have a 1-person IS dept).

Give Blurb i (also maybe blurb ii). Then confirm address.

We're NOT trying to get a firm commitment on the phone call. We just want to send an invitation to be part of our study team.

You've got the wrong office.

Try to get more info from them. They're more likely to have it than anyone else.

The parent company has been acquired by someone else.

We can't use them if the PARENT has been acquired by someone else OR if the PARENT has SOLD the TARGET to someone else. Just say "thank you" and hang up. It doesn't matter if the parent has acquired more targets.

If they don't seem to have an IS dept or they have >1 IS dept.

We're interested in your acquisition of <target> in 1992. Is there an executive there who was involved in that acquisition?

You get a voice mailbox

If you can get a first name and a last name from the message, write it down and call it done. Otherwise, I think the likelihood of them returning a call we leave on a voice mail is slim and none. Make a note that that's what you got. Set it aside. Then try twice. You can also get out of voice mail to a "real person" sometimes by hitting "0".

If you still get voice mail, make another note and write on the outside of the folder "VOICE MAIL". Then I'll figure out what in the world I'm going to do with them.

Questions that might come up:

Who are you?

I'm _____, and I'm involved in a major research project at Indiana University looking at Information Systems and Corporate Acquisitions. We are currently identifying MIS executives of firms who made publicly announced acquisitions in 1992.

Why are you doing this?

We are conducting research into the strategies MIS managers follow when their company acquires another company.

Why are you calling us? How did you get our name?

Your company <parent> was reported by the journal "Mergers & Acquisitions" to have acquired <target> in 1992. This magazine compiles publicly announced acquisitions and publishes a quarterly list of these transacitons.

Appendix D

Survey

Indiana University School of Business
Information Systems and Corporate Acquisitions

Thank you for participating in this study. By doing so, you will be providing critical data for a major study into corporate acquisitions. Your responses will be combined with those we receive from other MIS managers. Your individual answers, however, will be confidential. If you have any questions, please contact Janet Phelps, who is conducting this study, at (812)855-9703 or JAPHELP@Indiana.edu.

PLEASE RETURN BY FRIDAY, JUNE 9, 1995.

This response applies to the acquisition of

A. Background Information

1. Complete the following–or attach business card (to be used only to clarify unclear responses) :

   Name _____ Phone _____

   Job Title _____

   Mailing address _____

   City _____ State ____ Zip _____

2. When the study is completed, (check one):

   ___ I would like to receive a copy of the compiled results.
   ___ I will not need a copy of the compiled results.

3. Before this acquisition took place, I was employed by (check one):

   ___ The parent firm ___ The target firm ___ Neither

4. My current position is _____ with

   ___ The parent firm ___ The target firm ___ Other (explain) _____

5. My role in the MIS integration of this acquisition was: (Circle the most appropriate number)

Not very involved		Somewhat involved		Actively involved		In charge of the MIS integration
1	2	3	4	5	6	7

B. Administrative Information Systems

In the *administrative* role, information systems encompass accounting and control functions such as payroll, accounts receivable, and accounts payable. These are also referred to as "support" functions. (If these functions are provided by a third party (outsourcer) answer the questions as if the outsourcer were in-house.)

1 Integration of ***administrative*** information systems. (Circle the appropriate number.)

a To what degree did the parent firm want to integrate the administrative information systems of the parent and the target firm?

No integration		On-line data transfer		Complete integration
1	2	3	4	5

b How long did it take to achieve this level of integration? (after the closing date)

Less than 6 months	6 months to 1 year	1 to 1½ years	1½ to 2 years	2 to 2½ years	2½ to 3 years	Still in process
1	2	3	4	5	6	7

2. To what extent do the following statements describe what has occurred (or is expected to occur) in this acquisition? (Circle the number indicating your level of agreement.)

		Strongly Disagree		Neutral		Strongly Agree
a	Both the target and parent firms were represented among the team members who evaluated the administrative information systems	1	2	3	4	5
b	It was important for the target firm to change to the parent firm's administrative information systems	1	2	3	4	5
c	The parent firm adapted its administrative information systems to meet the needs of the target firm	1	2	3	4	5
d	The target firm adapted its administrative information systems to meet the parent firm's specifications	1	2	3	4	5
e	After the acquisition, the hardware which runs the administrative information systems for the parent and the target firms remained separate	1	2	3	4	5
f	Prior to the acquisition, the parent firm depended on a third party (outsourcer) for its administrative information systems	1	2	3	4	5
g	The parent firm developed new administrative systems that were then implemented for everyone	1	2	3	4	5
h	After the acquisition, new administrative information systems were purchased and implemented for the target firm	1	2	3	4	5
i	The target firm converted to administrative information systems that the parent firm was using	1	2	3	4	5
j	Synergies from combining administrative information systems were less than expected	1	2	3	4	5
k	After the acquisition, the administrative information systems in the target firm were outsourced to a third party	1	2	3	4	5

		Strongly Disagree		Neutral		Strongly Agree
l	Prior to the acquisition, the administrative information systems in the target firm were similar to those of the parent firm	1	2	3	4	5
m	In a joint development project, MIS personnel from the parent and target firms developed new administrative information systems that were then implemented throughout the firm	1	2	3	4	5
n	We evaluated which administrative information systems were best for the target firm	1	2	3	4	5
o	The parent firm has imposed its administrative information systems on the target firm	1	2	3	4	5
p	After the acquisition, the parent firm did **not** make changes to the administrative information systems in the target firm	1	2	3	4	5
q	Prior to the acquisition, the target firm depended on a third party (outsourcer) for its administrative information systems	1	2	3	4	5

C. Operational Information Systems

In the ***operational*** role, information systems encompass the entire production/marketing process. Examples of this type system include point-of-sale systems that are integrated with management reporting, insurance policy administration systems, computer integrated manufacturing systems, etc. (If these functions are provided by a third party (outsourcer) answer the questions as if the outsourcer were in-house.)

1. Integration of ***operational*** information systems. (*Circle the appropriate number.*)

   a. To what degree did the parent firm want to integrate the operational information systems of the parent and the target firm?

No integration		On-line data transfer		Complete integration
1	2	3	4	5

   b. How long did it take to achieve this level of integration? (after the closing date)

Less than 6 months	6 months to 1 year	1 to 1½ years	1½ to 2 years	2 to 2½ years	2½ to 3 years	Still in process
1	2	3	4	5	6	7

2. To what extent do the following statements describe what has occurred (or is expected to occur) in this acquisition? (Circle the number indicating your level of agreement.)

		Strongly Disagree		Neutral		Strongly Agree
a	Synergies from combining operational information systems were less than expected	1	2	3	4	5
b	It was important for the target firm to change to the parent firm's operational information systems	1	2	3	4	5
c	After the acquisition, the hardware which runs the operational information systems for the parent and the target firms remained separate	1	2	3	4	5

		Strongly Disagree		Neutral		Strongly Agree
d	We evaluated which operational information systems were best for the target firm	1	2	3	4	5
e	Prior to the acquisition, the operation information systems of the target firm were very similar to those of the parent firm	1	2	3	4	5
f	Prior to the acquisition, the parent firm depended on a third party (outsourcer) for its operational information systems	1	2	3	4	5
g	The parent firm has imposed its operational information systems on the target firm.	1	2	3	4	5
h	After the acquisition, the operational information systems in the target firm were outsourced to a third party	1	2	3	4	5
i	The parent firm developed new operational systems that were then implemented for everyone	1	2	3	4	5
j	The target firm converted to operational information systems that the parent firm was using.	1	2	3	4	5
k	After the acquisition, new operational information systems were purchased and implemented for the target firm	1	2	3	4	5
l	The parent firm adapted its operational information systems to meet the needs of the target firm	1	2	3	4	5
m	Both the target and parent firms were represented among the team members who evaluated the operational information systems	1	2	3	4	5
n	In a joint development project, MIS personnel from the parent and target firms developed new operational information systems that were then implemented throughout the firm	1	2	3	4	5
o	After the acquisition, the parent firm did **not** make changes to the operational information systems in the target firm	1	2	3	4	5
p	The target firm adapted its operational information systems to meet the parent firm's specifications	1	2	3	4	5
q	Prior to the acquisition, the target firm depended on a third party (outsourcer) for its operational information systems	1	2	3	4	5

D. Impact of the Acquisition

1. To what extent do you agree with the following statements: (Circle the appropriate number.)

		Strongly Disagree		Neutral		Strongly Agree
a.	We have saved money by combining *computer operations*	1	2	3	4	5
b.	It has been easier to get favorable hardware leases because of this acquisition.	1	2	3	4	5
c.	We have saved money by combining *the data centers* of the parent and the target firms	1	2	3	4	5
d.	We encountered very few MIS-related problems in this acquisition.	1	2	3	4	5
e.	We combined our data centers, which reduced expenses	1	2	3	4	5

		Strongly Disagree		Neutral		Strongly Agree
f	We have transferred MIS workers between the parent and the target companies	1	2	3	4	5
g	The parent firm has made extensive changes to the target firm's development standards	1	2	3	4	5
h	Overall, this acquisition has been free of problems (from a company-wide perspective, not just MIS)	1	2	3	4	5
i	Prior to the acquisition, the target firm had some sharp MIS managers, and we have benefitted from their expertise	1	2	3	4	5
j	The target firm had high quality administrative and operational information systems prior to the acquisition	1	2	3	4	5
k	We have saved money by combining *the IS personnel* of the parent and target firms	1	2	3	4	5
l	We have saved money by combining *hardware*	1	2	3	4	5
m	We have been able to get better deals on hardware and software because of this acquisition	1	2	3	4	5
n	The MIS staff of both firms have benefitted from shared knowledge and expertise	1	2	3	4	5
o	We have retained the MIS employees from the target firm	1	2	3	4	5
p	We have **not** been able to save on MIS expenses as a result of this acquisition	1	2	3	4	5
q	The target firm's MIS staff had functional expertise that the parent firm didn't have prior to the acquisition	1	2	3	4	5
r	The MIS staff we have now is smaller than the combined MIS staffs of the parent and target firm prior to the acquisition	1	2	3	4	5
s	The target firm had adequate documentation on the administrative and operational information systems they were using prior to the acquisition	1	2	3	4	5
t	We have assigned MIS managers from the parent firm to the target firm	1	2	3	4	5
u	We have **not** been able to take advantage of the target firm's general MIS management skills	1	2	3	4	5
v	This acquisition required an extraordinary MIS effort	1	2	3	4	5
w	We met our projected schedule for integrating the MIS operations in this acquisition	1	2	3	4	5
x	When it comes to buying hardware and software, our bargaining power was **not** affected by this acquisition	1	2	3	4	5
y	Overall, this acquisition has been very successful (from a company-wide perspective, not just MIS)	1	2	3	4	5

2. How many acquisitions had the parent firm made during the three years prior to this acquisition?
   ___ None ___ 1-2 ___ 3-5 ___ 6 or more

3. At the time of the acquisition, was the target firm in need of a turnaround?
   ___ Yes ___ No

E. General Acquisition Features

1. Overall Integration Strategy

Check which **one** of the following categories **best** describes the integration process of the parent firm and the acquired firm involved in this acquisition, as you understand it. This applies to the firms as a whole, not just MIS.

Check One ✓	Description	Basic tasks performed
____	**Absorption**	1 *Drawing up a blueprint for consolidation* 2 *Managing the combination* 3 *Moving to best practice* 4 *Harnessing the complementarity between the two firms*
____	**Preservation**	1 *Continued need to protect the boundary* between the organizations 2 *Nurturing the acquired firm* 3 *Accumulate learning* about the industry and the business 4 *Champion increased resource commitments*
____	**Symbiosis**	1 *Start with preservation* while the acquiring company makes changes in its own organization 2 *Reaching out rather than reaching in* Gradually encourage interactions between the two organizations, preferably at the initiative of the acquired company's managers 3 *Swapping operating responsibility for strategic control* Strategic control over the acquired firm gradually affirmed, while operating responsibilities of the managers of the acquired firm increased 4 Gradual *amalgamation of the two organizations*

2. Acquisition Goal

Check which **one** of the following categories **best** describes the **overall** goal of this acquisition, as you understand it.

Check One ✓	Description	
____	**Domain Strengthening**	Acquisitions which augment or renew the capabilities underlying the parent firm's competitive position in an existing business domain
____	**Domain Extension**	Acquisitions which apply the parent firm's existing capabilities in new, adjacent businesses or bring new capabilities into the firm to apply in its existing businesses
____	**Domain Exploring**	Acquisitions which involve moves into new businesses that require new capability bases. The parent firm intends to make a broader commitment to the acquisition and develop a more significant position in that industry

3. Acquisition Type

Check which **one** of the following **best** describes the target firm in relation to the parent firm prior to the acquisition.

Check One ✓	Type	Description
_____	**Horizontal**	In the same industry as the parent firm, with the same types of customers and products
_____	**Vertical**	A supplier or customer of the parent firm
_____	**Product Extension**	Expands product lines of the parent firm
_____	**Market Extension**	Expands customer base of the parent firm
_____	**Unrelated**	Has different products and customers from those of the parent firm

F. General Information

1. At the time of the acquisition, what were the respective sizes of the firms?
   ($ million revenue. Please give range if uncertain)

   $ _____ Parent firm $ _____ Target firm

2. Was this acquisition a hostile takeover involving a proxy fight?

   ___ Yes ___ No

G. Comments: We will appreciate your comments about this study, particular questions, or your acquisition.

_____

_____

_____

_____

_____

Return this response to:

JANET S. PHELPS
INDIANA UNIVERSITY SCHOOL OF BUSINESS
DEPARTMENT OF DECISION AND INFORMATION SYSTEMS
TENTH & FEE LANE - SUITE 570
1 INDIANA UNIVERSITY
BLOOMINGTON, IN 47405-9952

Thank you!

Appendix E

Contact Letters

INDIANA UNIVERSITY

SCHOOL OF BUSINESS

William C. Perkins

Executive Director
Institute for
Research on the
Management of
Information Systems

Professor of
Decision and
Information Systems

Tenth and Fee Lane
Bloomington, Indiana
47405-1701

May 23, 1995

Mr. John Jones
ABC Company
Anytown, IN 46000

Dear Mr. Jones:

We are searching for MIS managers who have recently faced a corporate acquisition, and your name has been suggested to us. We understand that **<parent firm>** acquired **<target firm>** in 1992. Would you complete the enclosed survey or route it to an MIS manager who was involved with this acquisition? Please return it to us in the enclosed envelope by:

Friday, June 9, 1995

If you can assist us,

- You will be one of a select group of MIS managers from across the United States contributing to the Indiana University study on corporate acquisitions.
- Your responses will be kept confidential. They will be reported only in summary form with other companies in the study.
- We will be happy to send you the Information Systems and Corporate Acquisitions study results.

The data you provide will be a critical part of Ms. Janet Phelps' doctoral dissertation. Her basic question is:

What strategies do MIS managers follow when faced with a corporate acquisition?

When corporate acquisitions are made, they present a special challenge to today's managers. As a MIS manager yourself, you have dealt with the changes resulting from a corporate acquisition.

If you have any questions, please contact me or Ms. Phelps at (812)855-9703. On behalf of Indiana University, thank you, in advance, for your time and effort in helping us.

Sincerely,

William C. Perkins
Executive Director, IRMIS
Professor of Decision and Information Systems

INDIANA UNIVERSITY

SCHOOL OF BUSINESS

William C. Perkins

Executive Director
Institute for
Research on the
Management of
Information Systems

Professor of
Decision and
Information Systems

Tenth and Fee Lane
Bloomington, Indiana
47405-1701

June 13, 1995

Mr. John Jones
ABC Company
Anytown, IN 46000

Dear Mr. Jones:

A few weeks ago, you should have received a letter from me requesting your participation in our study on:

Information Systems and Corporate Acquisitions

I hope you have looked it over and are planning to respond. If you have mailed your response already, thank you for your participation. If you have not yet responded, please take a few moments to do so and return the survey to us by:

Monday, June 26, 1995

Your response will relate to the acquisition of **<Target Name>** by **<Parent Name>**, as reported in 1992. If you need another copy of the survey, please call (812)855-8966 and we will fax it to you.

Your input is important. As a participant in this study:

- You will be one of a select group of MIS managers from across the United States contributing to the Indiana University study on corporate acquisitions.
- Your responses will be confidential. They will be reported only in summary form with other companies in the study.
- You will receive, if desired, the results of the Information Systems and Corporate Acquisitions study.

Your data is critical to Ms. Janet Phelps' doctoral dissertation. It seeks to identify strategies followed by MIS managers when they are faced with a corporate acquisition. If you have any questions, please contact me at (812)855-8966 or Ms. Phelps at (812)335-1568.

On behalf of Indiana University, thank you for your time and effort in helping us.

Sincerely,

William C. Perkins
Executive Director, IRMIS
Professor of Decision and Information Systems

Vita

Name:	Janet Sue Phelps	
Born:	April 16, 1960, Coshocton, Ohio	
Degrees:	B.S.B.A.	University of Arkansas at Little Rock, 1982
	M.B.A.	University of Arkansas at Little Rock, 1987
	Ph.D.	Indiana University, 1996