AN EXAMINATION OF CIO LEADERSHIP STYLE AND BUSINESS STRATEGY FOR BUSINESS-IS STRATEGIC ALIGNMENT: A CORRELATIONAL STUDY

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Abstract

Business leaders rely on information technology (IT) and information systems (IS) to stay

competitive, and experts agree that the Chief Information Officer (CIO), as the individual

responsible for technology optimization, is essential to business success. Based on this

understanding, for over 40 years, researchers have invested valuable resources in

examining strategic alignment and its antecedents. Although past scholars hint at the

likelihood that leadership style influences strategic alignment, no researcher has verified

influence in such a relationship. The purpose of this nonexperimental cross-sectional

correlational study was to examine the relationship between a CIO's leadership style and

strategic alignment when moderating for business strategy. In this research, 145 IT

managers who work in the United States completed surveys to share their perceptions of

their CIOs' leadership style and the realized business and IS strategies. Correlational

statistical analyses supported examination of the relationship between three leadership

styles (transactional, transformational, and mixed) and strategic alignment for three

business strategy types (defender, prospector, and analyzer). Initial findings showed that

the leadership style of a CIO had a statistically significant influence on strategic

alignment. Following moderation of the relationship by business strategy type, a

statistically significant correlation existed between transactional leadership and strategic

alignment for analyzer business strategy. However, no statistically significant evidence

supported the CIO's leadership style suited for defender and prospector business

strategies. In practice, organizations could use the insights from this study to select or

develop CIOs with a particular leadership style to match their business strategy in order

to increase the chance of success in achieving strategic alignment. Recommendations for

further studies included the use of adequate samples for all statistical analysis and the use

of a validated model for leadership style assessment.

Dedication

This work is dedicated to my family and friends whose support contributed immensely to the completion of this dissertation study. In particular, I wish to thank my wife (Ethel Berepiki), whose loving care made this journey possible, and my sons (Mathew and Toby) who understood their dad had to attend to school work sometimes. Also, I wish to thank my parents for their guidance; my brother Soje, who, on several occasions, during his visits, patiently tolerated my unavailability; and most of all, my father in heaven who taught me to seek wisdom and showed me mercy. I thank you all for your support and encouragement.

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I acknowledge the efforts of my mentor (Dr. John Grillo) who provided valuable insights during this journey. Also, I extend my appreciation to my dissertation committee members Dr. Mary Lind, Dr. Charlene Dunfee, and Dr. Christopher Lucarelli for committing their time to this course. Furthermore, I wish to thank my Track-One mentor Dr. Jane Petrick, who I am sure did not realize how much her explanation of the relationship between theory, construct, and my study made an indelible impression on me. Last but not least, I acknowledge all the researchers upon whose works I based this dissertation study and the university staff who touched my life in one way or another during this journey.

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CHAPTER 1. INTRODUCTION

The topic for this study was *An Examination of CIO Leadership Style and Business Strategy for Business-IS Strategic Alignment*. Scholars have found that the alignment between business strategy and information systems (IS) strategy (hereafter referred to as *Strategic Alignment*) influences organizational outcomes (Gerow, Grover, & Thatcher, 2016; Wu, Straub, & Liang, 2015). Furthermore, some researchers have asserted that *ceteris paribus*, strategically aligned organizations are more effective at adapting to change in the marketplace than their misaligned counterparts. Despite the benefits of strategic alignment, findings from recent studies have shown that although more than 40 years have elapsed since scholars first stressed the need for strategic alignment, most information technology (IT) executives have consistently ranked alignment as one of their top ten challenges in the past decade (Kappelman, McLean, Johnson, & Gerhart, 2014; Kappelman, McLean, Johnson, & Torres, 2016; Luftman & Ben-Zvi, 2011). As the most senior leader of an organization's IT function, the Chief Information Officer (CIO) plays a vital role in formulating and implementing IS strategies. The CIO's actions have significant ramifications to an organization's overall well-being (Dawson, Ho, & Kauffman, 2015; Karahanna & Preston, 2013). However, there is little evidence to support whether the leadership style of a CIO could influence strategic alignment (Chae, Koh, & Prybutok, 2014; Shao, Feng, & Liu, 2012). In this study, the researcher aimed to contribute to alignment research by examining the influence of IT leadership style and business strategy on strategic alignment.

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Background of the Problem

In the current decade's fast-paced and dynamic market climate, senior executives at successful organizations adapt to change by making quick and reliable decisions that influence business outcomes (Kohli & Johnson, 2011; Oghojafor, Muo, & Aduloju, 2012; Lu & Ramamurthy, 2011). Among several factors, researchers have shown that senior executives oversee four critical activities that enable an organization's success. The activities are (a) establish organization goals, (b) formulate business strategies that accomplish the goals, (b) implement information systems that actualize business plans, and (d) institute leadership that ensures the effective management of resources (Applegate, Austin, & Soule, 2009; Cangemi, Burch, & Miller, 2015). As academics and professionals continue to explore more ways to derive additional benefits from the limited investments in businesses, their research interests have centered on understanding these critical success factors.

An organization's goal, which behavioral and organizational theorists have studied extensively, represents the desired outcome of a business entity, which top executives frequently assess with a set of measurable key performance indicators (DeMassis, Frattini, Kotlar, & Wright, 2015; Izhar, Torabi, Bhatti, & Liu, 2013; Perrow, 1961). For example, the goal of a business corporation could be to make a profit or to receive an adequate return on its investments. Furthermore, both Greve (2008) and DeMassis et al. (2015) observed that whereas firms in the service industry favor profitability over size, those in the manufacturing sector follow the opposite. To this end, researchers have argued that depending on factors such as size, industry type, governance

posture, and market position, an organization's goal could emphasize profit, sales, productivity, market share, or status (DeMassis et al., 2015).

Organizations formulate strategies in their quest to fulfill both short- and long-term goals (Sitkin, See, Miller, Lawless, & Carton, 2011). Such strategies represent "the act of aligning a company and its environment" (Porter, 1991, p. 97). Moreover, the effects of all actions taken by a business uniquely identify it as one that defends its territory, prospects for new opportunities, or does both (Miles, Snow, Meyer, & Coleman, 1978). These postures represent three strategic business orientations commonly referenced by strategic management researchers. In other words, companies achieve functional (or operational) goals through realized strategies that result in outcomes, such as the introduction of new products; penetration into new markets, mergers and acquisitions; and increased research and development activities (Gerow, Grover, Thatcher, & Roth, 2014).

Furthermore, there is a reasonable consensus among IS strategy scholars and strategic management theorists that the fit (or alignment) between business and IS strategies increases an organization's ability to actualize its strategic vision (Gerow et al., 2014; Sledgianowski, Luftman, & Reilly, 2006). Despite the understanding, over two decades have elapsed since Henderson and Venkatraman (1993) first articulated how IS and business strategies influence each other; yet, IS strategy continues to serve at a functional level where it subordinates business strategy (Bharadwaj, ElSawy, Pavlou, & Venkatraman, 2013). In recent times, as companies have become increasingly digital due to advanced interconnections among products, processes, and services, some scholars

have argued for the need to elevate IS strategy to ensure tighter integration with business strategy (Drnevich & Croson, 2013; Mithas, Tafti, & Mitchell, 2013).

Moreover, this shift in the role of IS strategy, combined with a firm's strategic posture, calls for a new mandate for the CIO, who must continuously monitor investments in IS/IT and take necessary actions to address limitations with traditional approaches. Along these lines, researchers have argued that CIOs' position of authority, in addition to the other capabilities they possess, could determine their effectiveness at contributing to organizational outcomes (Banker, Hu, Pavlou, & Luftman, 2011; Chun & Mooney, 2009; Li & Tan, 2013). However, little evidence showed what (if any) relationships existed between strategic alignment and CIOs' leadership styles regarding the achievement of business outcomes (Shao et al., 2012). In particular, before this study, no researcher had empirically examined the constructs of strategic alignment, CIO's leadership style, and strategic business orientation together.

Theoretical Foundation

For the present study, the researcher adopted three broad theoretical perspectives: (a) leadership theory, (b) strategic alignment model, and (c) resource-based view. First, the author borrowed ideas from Fiedler's trait contingency model of leadership, which posits that leader effectiveness is contingent on having the right type of leader for a situation (Fiedler, 1996; Van de Ven, Ganco, & Hinings, 2013). By extension, the researcher believes that the most effective leadership style is contingent upon various internal (e.g., gender, age) and external (e.g., culture, context) conditions that in turn shape an organization's business strategic posture (Avolio, 2007; Hickman, 2010). In

other words, having the right kind of CIO leadership style that fits a company's unique strategic posture could influence the achievement of desired outcomes.

Second, this research study leveraged principles from the full range leadership (FRL) theory (Bass & Riggio, 2006). In particular, it borrowed concepts from the theories of transactional leadership and transformational leadership. Whereas transactional leadership assumes that a leader-member exchange relationship relies on the exchange of valued substance, transformational leadership posits that the leader-member exchange relationship raises both parties to higher levels of motivation (Groves & LaRocca, 2011; Paraschiv, 2013). Furthermore, in this study, the researcher used the term *mixed leadership* (Shao et al., 2012) to refer to the co-existence of aspects of both transactional and transformational leadership styles in a leader-member exchange relationship. To this end, he assumed that CIOs apply either transactional, transformational, or mixed leadership behaviors in leading IT functions.

Third, researchers (e.g., Gerth & Peppard, 2016; Carter, Grover, & Thatcher, 2011) have argued that the strategic role of IT in today's digital enterprise justifies including CIOs among the top management team (TMT). Along these lines, the researcher acknowledged the important posture of CIOs in the strategic decision-making process, and consequently, drew on principles from the upper-echelons in the field of strategic leadership. The upper-echelon theory posits that top managers' background and their characteristics could partially predict strategic choices and organizational outcomes (Hambrick & Mason, 1984). Armed with insights from related studies grounded on the principles of upper-echelon theory (e.g., Li & Tan, 2013; Shao et al., 2012), the

researcher assumed that CIOs' characteristics, especially their leadership styles, could influence IS strategy formulation, implementation, and overall business outcome.

Fourth, the researcher built this study on the principles of the strategic alignment model (SAM), which inspired a fundamental shift in the role of IT towards improving business optimization (Henderson & Venkatraman, 1993). The SAM advocates elevating the role of IT from its traditional functional and operational levels to one that includes a strategic focus in such a way that IT could improve a business's ability to compete in the marketplace (Coltman, Tallon, Sharma, & Queiroz, 2015; Gerow et al., 2014). In its functional and operational roles, IT serves a support purpose where it sustains internal business activities and drives efficiency; in contrast, in its strategic role, IT has an elevated status where the influence relationship between IT and business functions is bidirectional. For example, a new concept such as the *Internet of Things* (IoT) could trigger innovative thinking that consequently results in technological changes that, in turn, improve a firm's competitive edge. Analogous to related studies (e.g., Chan, Sabherwal, & Thatcher, 2006; Gerow, Thatcher, & Grover, 2015; Sabherwal & Chan, 2001), in this study, the researcher conceptualized SAM as a central element of business transformation made possible through the continued synchrony between IT and business strategies. Hence, SAM reflects the capability of IT to both shape and support business strategy.

Next, the last theoretical foundation, the resource-based view (RBV), provided a valuable backdrop for understanding how organizations achieve and sustain competitive advantage (Barney, 1991; Hinterhuber, 2013). It is both a competence-based and knowledge-based model; as a competence-based model, RBV focuses on identifying

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those resources that an organization could leverage in its quest for stability and growth (Drnevich & Croson, 2013). On the other hand, as a knowledge-based model, RBV conceptualizes knowledge as a valuable, rare, and inimitable resource that uniquely defines an organization. Some scholars in the IT field (e.g., Pan, Pan, & Lim, 2015) have argued that RBV provides an enabling context for examining the combined constructs of IT and strategy. Furthermore, it assumes that whereas all organizations possess resources, only a subset of those resources is required to stay competitive, and the critical resources become obsolete as time progresses (Bacha, 2012). In extending RBV to the field of IT, some researchers have cautioned that most organizations assume that strategically leveraging valuable, rare, and inimitable IT resources result in desirable organizational outcomes (Leelien, 2010). Also, managers could use RBV principles to target investments in IT and emphasize the need to focus on a subset of IT resources, not all.

High-Level Conceptual Model

The researcher used two conceptual models to examine the study's constructs and their hypothesized relationships. The first model, as shown in Figure 1, provides a systemic (or high-level) view of the constructs, and the *a priori* deduced relationships among them. The second model, discussed in Chapter 2, provides a detailed view of the operational sub-constructs for the study and their hypothesized bivariate relationships that formed the basis for subsequent analysis.

The researcher developed the study's high-level conceptual model (Figure 1) based on insights from a priori deductions made during the preliminary investigation of the constructs. The solid connector lines in the model represent relationships that researchers have empirically verified in previous studies. In particular, researchers

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involved in seminal studies, such as Henderson and Venkatraman (1993), Luftman (2000), and Sabherwal and Chan (2001), have empirically examined these two relationships: (a) Business Strategy and Strategic Alignment, and (b) IS Strategy and Strategic Alignment. Furthermore, several modern scholars (e.g., Gerow et al., 2014) have re-examined and verified the results of seminal research. The dotted connector lines in the high-level model represent relationships that researchers have either explored qualitatively (e.g., Shao et al., 2012) or recommended for further investigation (Chae et al., 2014). In short, until the time of writing, no researcher has empirically examined such relationships.

This study's conceptual model suggests that strategy formulation and implementation processes depend on the effectiveness of IT leadership at bridging those gaps that exist between business strategies and IS strategies (Gerth & Peppard, 2016). As a consequence of these actions, organizations could either achieve or fail to achieve strategic alignment between business functions and IS practices. Moreover, as depicted by the double-headed arrows in Figure 1, the conceptual model also suggests that the predicted influence relationships between (a) IT Leadership and Business Strategy and (b) IT leadership and IS strategy are bidirectional. For example, Kohli and Johnson (2011) found that at Encana Oil and Gas (USA) Inc., top executives first formulated business strategies including IS objectives and then established a clear vision for the CIO. However, in another example, the CIO's mandate also included the formulation of IS strategies that influenced business plans (cf. Cui, Ye, Teo, & Li, 2015). A final suggestion of the model is that IT leadership influences strategic alignment through its involvement in the formulation and implementation of both business and IS strategies.
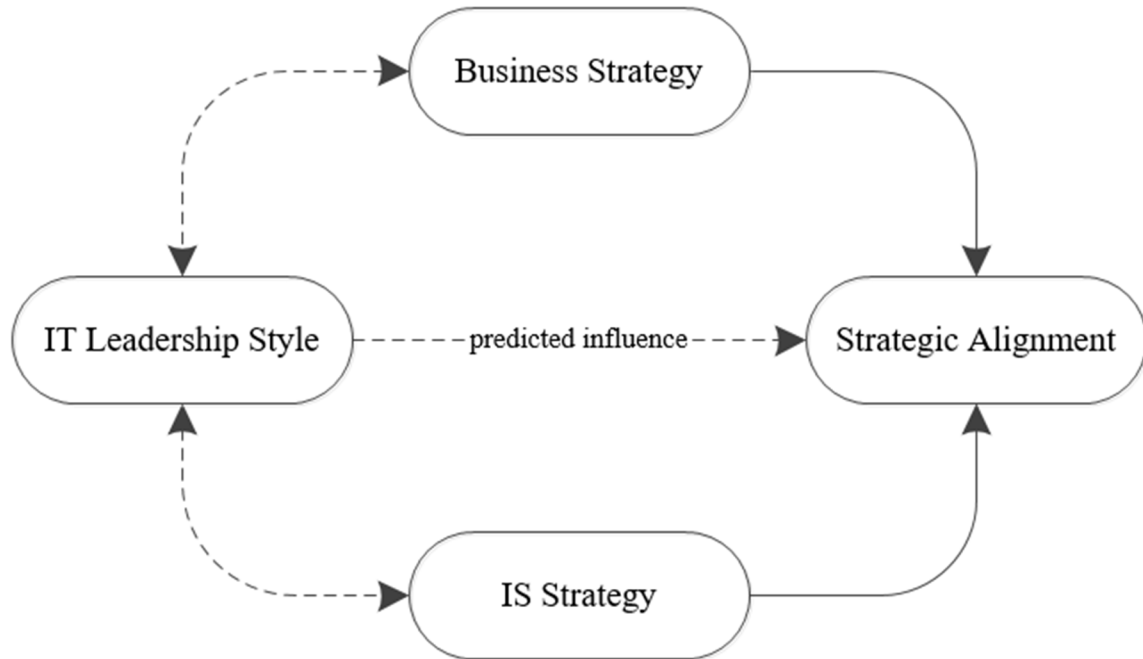
Figure 1. High-level conceptual model for the study. Dotted connector lines represent the predicted influence relationships that necessitated the current study, and solid connector lines represent relationships already validated in previous studies. Double-headed arrows represent bidirectional influence relationships.

The viewpoints of the present study, as depicted in the high-level conceptual model, have evoked ongoing debate among strategic management scholars on whether (a) strategy decides managers or (b) managers decide strategy (Hickman, 2010; Li & Tan, 2013). Proponents of the first argument, such as Miles et al. (1978), argued that organizations should match managers to strategies. In essence, these theorists believe that managers possess unique qualities that distinguish one from another, and that certain managerial qualities are better suited for specific strategic orientations. In contrast, proponents of the second argument (managers decide strategy) referred to the upper-echelon theory (Hambrick & Mason, 1984), which posits that managers play vital roles in shaping strategic choices. These policy decisions, in turn, "reflect the values, principles, and preferences of decision makers" (Li & Tan, 2013, p. 250). In other words, these

theorists believe that strategic choices do not exist in a vacuum, but instead, they are the results of human decisions and behaviors. While developing the conceptual model for the present study, the researcher assumed a neutral position in the ongoing debate by suggesting a bidirectional causal relationship between (a) IT leadership and business strategy and (b) IT leadership and IS strategy. The researcher justified this neutral posture because the objective of this study was to examine the influence relationships between IT leadership and strategic alignment, not to investigate causal relationships between the four high-level constructs.

Statement of the Problem

CIOs provide oversights that ensure checks and balances for successful IT governance (Wu et al., 2015), and the contributions of CIOs toward formulating and implementing IS strategies influence IT outcomes (Carter et al., 2011; Preston & Karahanna, 2009b). That is, CIOs contribute to business success, and they are essential to organizations that aspire to gain and sustain a competitive advantage over their peers. Furthermore, researchers have argued that certain factors, such as a leader's position of influence within an organization, his or her cognitive values, and experiences, distinguish effective leaders from their less capable counterparts (Banker et al., 2011; Northouse, 2015). For example, Li and Tan (2013) found that younger CIOs are effective at leading the IT function of companies that operate in dynamic environments. Also, Gerth and Peppard (2016) stated that effective leaders establish healthy relationships with other executives by taking advantage of their strategic posture and influence networks (see also Cangemi et al., 2015). In other words, the findings from these and other studies showed that certain factors do indeed influence a leader's outcome.

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Both Bennett (2009) and Puni and Bosco (2016) argued that the extent of a follower's contribution towards business outcomes depends on a manager's ability to apply a leadership style that is appropriate for a situation. Others noted that whereas participative leadership styles encourage followers' involvement in decision-making processes, authoritarian leadership styles have the opposite effect (Appelbaum, Degbe, MacDonald, & Nguyen-Quang, 2015; Hetland, Hetland, Cecilie, Pallesen, & Notelaers, 2011). By extension, modern leadership theorists believe that the arsenal of behavioral techniques a leader deploys in a particular context determines whether he or she is transformational or transactional (Podsakoff, Podsakoff, & Kuskova, 2010). Researchers have also demonstrated that although both transformational and transactional leaders are essential to every organization, successful leaders understand that different situations might warrant the use of either transformational, transactional, or mixed leadership behaviors (Deinert, Homan, Boer, Voelpel, & Gutermann, 2015; Quintana, Park, & Cabrera, 2015). In other words, effective leaders know that their leadership style could influence organizational outcomes, and so, they combine the right mix of behaviors in their interactions with followers.

Wu et al. (2015) and Kappelman et al. (2016) found that although both IT leadership and IT governance were essential for business success, neither had a direct influence on business outcomes. Rather, the mediating role of strategic alignment led to positive results (see also De Haes & Van Grembergen, 2009; Sledgianowski et al., 2006). Taken together, the findings from related studies and other insights on leadership, strategic management, and IT indicated that (a) strategic alignment influences business outcomes, (b) IT governance influences business outcomes through the mediating role of

strategic alignment, (c) management and leadership practices influence strategic alignment, and (d) the health of a CIO's relationship with other senior executives affects IT outcomes. However, before this study, scholars had not addressed whether the combination of an IT leader's style and a business's strategic posture influences strategic alignment.

Purpose of the Study

CIOs often receive criticism for the failure of IT functions to meet business expectations (Carter et al., 2011; Gerth & Peppard, 2016). Moreover, the recent increase in awareness of the role of IT and the heightened expectations from IT in today's digital enterprises have intensified the situation. Some researchers have argued that the lack of confidence in some CIO-TMT pairings, which results in high CIO turnover, stems from a mismatch between a CIO's characteristics and an organization's business goals (Li & Tan, 2013). For example, Texaco Exploration and Petroleum endured more than 40 years of failed attempts to find the right CIO before senior executives realized the importance of matching the CIO's characteristics to the organization's business goals (Hirschheim, Porra, & Parks, 2003). By examining the relationship between leadership style and strategic alignment in this study, the researcher aimed to address a need in the strategic management field that could uncover new insights into the antecedents of strategic alignment (Chan & Reich, 2007a; De Haes & Van Grembergen, 2009; Preston & Karahanna, 2009a). Therefore, the purpose of this study was to examine relationships between CIO leadership style and business-IS strategic alignment while accounting for the potential moderating effects of business strategy. The results of this research

determined whether certain combinations of IT leadership style and strategic business orientation influenced strategic alignment (Shao et al., 2012; Kohli & Johnson, 2011).

<h2 style="text-align:center">Significance of the Study</h2>

First, in efforts to achieve an optimal balance between a CIO's contributions and business goals, organizations or senior executives could apply this study's findings and determine which leadership style they require from their CIO. For example, when unprecedented pressure from market turbulence forces organizations to cut costs, executives look to IT for help (Kohli & Johnson, 2011). During turbulent times, organizations shift to a more defensive strategic focus (Miles et al., 1978; Shao et al., 2012). As a result, executives could identify a CIO whose leadership style is suited to achieving new organizational goals.

Second, organizations need information about the relationship between leadership style and strategic alignment to facilitate planning for CIO succession. On the one hand, executives have expressed concerns that sometimes their investments in IT fail to yield tangible business benefits (Gerth & Peppard, 2016). On the other hand, modern researchers (e.g., Krotov, 2015) have continued in their attempts to examine ways to maximize IT benefits; however, before this study, no researcher has empirically examined the effects of CIO leadership on strategic alignment. Hence, by filling the gap in the research literature, the findings from this study could add valuable insights to the existing body of knowledge that organizations use for CIO succession planning, training, and selection processes.

Third, the research community has expressed interest in investigating CIO leadership and strategic alignment. For example, while developing their theoretical

model, Shao et al. (2012) posited that a transformational leader is better suited to the prospector business strategy, and a transactional leader is better suited to the defender business strategy. However, in their exploratory study, the researchers did not identify the potential influence of other factors on the relationship, such as organization size. Empirical testing of Shao et al.'s (2012) propositions could yield new knowledge to improve their theoretical model and others in related studies (e.g., Li & Tan, 2013; Sabherwal & Chan, 2001) to aid future research.

Last, a confirmation of statistically significant correlations between the constructs of leadership style, business strategy, and strategic alignment may supplement theoretical knowledge. Early investigators (e.g., Sabherwal & Chan, 2001; Sledgianowski et al., 2006) examined relationships between business strategy, strategic alignment, and organizational performance. Later, other scholars (e.g., Shao et al., 2012) advanced earlier theories by qualitatively exploring the influence of IT leadership on business strategy and strategic alignment. By validating the relationships predicted by Shao et al. (2012), another goal of this study was to advance the existing theory in the fields of strategic management and leadership.

Research Questions

Although strategic alignment has a significant influence on the achievement of desired business outcomes, the absence of sufficient evidence on its antecedents has made it difficult to exploit the capabilities of strategic alignment thoroughly (cf. Gerow et al., 2016; Li & Tan, 2013). By understanding whether (or not) leadership style influences strategic alignment, scholars and practitioners could have valuable additional insights on other antecedents of strategic alignment; hence, in this study, the researcher aimed to

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answer one important research question. RQ: To what extent, if any, does CIO leadership style correlate with strategic alignment when moderated by business strategy? Furthermore, the researcher posed the following nine sub-questions (SQs) to provide further clarity to the omnibus research question.

SQ1: To what extent, if any, does CIO transactional leadership style correlate with strategic alignment when moderated by defender business strategy?

SQ2: To what extent, if any, does CIO transactional leadership style correlate with strategic alignment when moderated by prospector business strategy?

SQ3: To what extent, if any, does CIO transactional leadership style correlate with strategic alignment when moderated by analyzer business strategy?

SQ4: To what extent, if any, does CIO transformational leadership style correlate with strategic alignment when moderated by defender business strategy?

SQ5: To what extent, if any, does CIO transformational leadership style correlate with strategic alignment when moderated by prospector business strategy?

SQ6: To what extent, if any, does CIO transformational leadership style correlate with strategic alignment when moderated by analyzer business strategy?

SQ7: To what extent, if any, does CIO mixed leadership style correlate with strategic alignment when moderated by defender business strategy?

SQ8: To what extent, if any, does CIO mixed leadership style correlate with strategic alignment when moderated by prospector business strategy?

SQ9: To what extent, if any, does CIO mixed leadership style correlate with strategic alignment when moderated by analyzer business strategy?

Definition of Terms

Business strategy. The plans, policies, and actions that guide investments in businesses as they strive to stay competitive and gain a valuable edge in the marketplace (Henderson & Venkatraman (1993). In this study, the plans and activities that define business strategy refer to those realized from business investments. Furthermore, the researcher distinguished between business strategy and corporate strategy, which relates to the combined strategies for multiple business units that form an organization.

Chief information officer (CIO). The highest-ranking executive or manager responsible for IS in an organization (Banker et al., 2011). Other titles used for CIO might include chief operating officer (COO), chief technology officer (CTO), IT manager, director of IT, and vice president of IT.

Information systems strategy (IS strategy): The plans, policies, and activities that guide investments in information systems and business applications of IT (Sabherwal & Chan, 2001). In this study, the plans and activities that define IS strategy refer to those realized from IS investments. Furthermore, the researcher distinguished IS strategy from IT strategy, which focuses on policies such as architecture, technical standards, security, and risk.

Leadership. A process of influence involving two parties (Metcalf & Benn, 2013). First, the term leadership involves a leader who influences follower(s), and second, it involves one or more followers who are influenced by their leader, and who may, in turn, influence the same leader (Yukl, 1999).

Middle manager. An intermediate level manager whose level of authority lies somewhere between top management and supervisors of individual contributors

(Appelbaum et al., 2015). Middle managers are essential in linking the gaps between senior executives and frontline employees, which is important for strategy formulation and implementation.

Mixed leadership style. The leadership style of an individual that shows high levels of both transformational and transactional leadership in leader-member exchange relations (Shao et al., 2012).

Realized strategy. A business or IS strategic posture that is made evident from sunk investment decisions (Chan, Huff, Barclay, & Copeland, 1997). The researcher differentiated between realized strategy and planned (or documented) strategy. All references to strategy (i.e., business strategy, IS strategy, strategic alignment) in this study imply realized strategy.

Strategic alignment. The outcome from maintaining harmony between IS strategy and business strategy in the external environment and internal interdependencies (Gerow et al., 2014). Simply put, strategic alignment refers to the areas where IS strategy and business strategy intersect.

Strategic leadership. A form of leadership focused on achieving both the short-term stability and long-term viability of business (Serfontein & Hough, 2011). All references to leadership in this study imply strategic leadership.

Top management team (TMT). A small group of influential senior executives, including a CIO, that is responsible for stirring an organization in a strategic direction (Hickman, 2010). These leaders are responsible for formulating a business' strategy.

Transactional leadership style. A participatory form of leadership where leaders and followers agree to exchange valuable substance (e.g., compensation, salary increase) to achieve desired results (Antonakis, Avolio, & Sivasubramaniam, 2003).

Transformational leadership style. A participatory form of leadership wherein leaders influence, inspire, and motivate followers to help them transcend self-interest to achieve desired results (Antonakis et al., 2003).

Research Design

The researcher used a quantitative, nonexperimental, correlational study design to investigate the research questions presented earlier. The researcher compiled the data for the study from an online survey comprising closed-ended questions anchored on Likert scales. The survey instrument consisted of sections that measured the constructs of leadership styles, business strategy, and IS strategy. The combined measures for business strategy and IS strategy determined the extent of strategic alignment. QuestionPro, an Internet-based survey service provider, handled participants' recruitment, survey administration, and data collection.

The research philosophy for this study included a post-positivist worldview that influenced its deterministic and reductionist perspectives (Creswell, 2014). From a deterministic viewpoint, an objective reality lens supported examination of the effects and outcomes due to causality. From a reductionist perspective, parsimonious analysis reduced ideas into small and discrete sets of tests aimed at uncovering potential relationships between the constructs in the research questions (Crotty, 2012).

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Assumptions and Limitations

Assumptions

Theoretical assumption. Following the recommendations from scholars (e.g., (Bass & Riggio, 2006; Coltman et al., 2015), the researcher assumed that the three theories adopted for this study (i.e., leadership theory, strategic alignment model, and resource-based view) provide sufficient guiding principles to assist with successful examination of the research questions and constructs.

Constructs measurement. The researcher assumed that use of a Likert scale to measure how strongly respondents agree with a question was sufficient in assessing the severity of each construct (Sekaran & Bougie, 2013). Furthermore, he treated these measures as though they were from an interval scale; hence, he considered measures of central tendency (e.g., mean, range) and dispersion (e.g., standard deviation, variance) as valid forms of statistical analysis.

Unit of analysis. The researcher focused on strategy at the business unit level instead of corporate or functional levels. Hence, he assumed that companies could use IS to gain and sustain a competitive advantage by exploiting IS resources to create distinctive competence (Chan et al., 1997; Hinterhuber, 2013). The business unit of analysis was preferred because most organizations operate in multiple market segments; therefore, a focus on corporate level strategy would result in too much aggregation to understand strategic influences (Venkatraman, 1989a).

Survey administration. The researcher assumed that all participants recruited by QuestionPro matched the inclusion criteria and that the information divulged formed an accurate representation of the business activities in their organizations.

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Middle managers as survey participants. By recruiting middle managers as study participants, the researcher assumed that the unique posture of these managers, which put them in proximity with business stakeholders (i.e., sponsors and users of IS), availed them the opportunity to understand, firsthand, perceptions on realized gains (Appelbaum et al., 2015).

The strategic role of IS. The researcher assumed that all of the survey responses came from organizations where IS plays a strategic role. This assumption implies that the CIOs in those organizations are members of the senior executive team, and hence, they are significant contributors to strategic business outcomes (Carter et al., 2011; Banker et al., 2011). In contrast, where IS serves only operational purposes, CIOs have limited responsibilities with less strategic focus.

Classification of leadership styles. Some researchers (e.g., Antonakis et al., 2003) referred to transformational and transactional leadership when, in fact, most leaders have a profile that combines traits across multiple spectrums of the full range of leadership. Hence, in this study, the researcher assumed that transformational leaders have a profile dominated by transformational, rather than transactional leadership and vice versa. Furthermore, some leaders have profiles equally dominated by both transformational and transactional leadership. In those cases, the researcher assumed that leaders with such profiles practice mixed leadership.

Linear relationship. The researcher assumed that all relationships between pairs of constructs are linear; hence, he used a linear model for statistical analysis (Field, 2013). Furthermore, he assumed that researchers rely on arithmetic operations (e.g., sum, mean) to accurately assess the combined effects of multiple predictors.

Limitations

Several limitations could have influenced the outcome of this study. A low response rate due to many survey questions, which might have deterred participants from completing the survey.

Using middle managers as the sole participants in the study might have resulted in different outcomes compared to a matched-pair survey involving a CIO and a CEO from a single organization.

Whereas all leaders are capable of exhibiting qualities indicative of complex mix of multiple leadership styles, in this study, the researcher judged CIOs by their dominant leadership style.

The researcher used quantitative analysis alone to examine this study's constructs and to arrive at the conclusions. Lack of follow-up sessions with participants via qualitative means (e.g., interview) might have limited explanations for some of the findings of the study.

Use of correlational analysis for examining relationships between the study's constructs might have yielded varying results compared to more advanced statistical techniques, such as structural equation modeling (SEM).

It is possible that some of the relationships between the constructs are nonlinear, in which case, some of the study's findings might be inaccurate.

Organization of the Remainder of the Study

In Chapter 1, the researcher provided relevant insights into the background, purpose, and significance of the study. In particular, he highlighted some of the challenges that strategic management scholars and practitioners face, and proceeded to

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discuss how knowledge gained from the study's findings might advance theories in the field. Furthermore, the researcher presented the first of two conceptual models for the study that showed theorized relationships between the four high-level constructs investigated further in the subsequent chapters.

The organization of the next four chapters, which represent the remainder of the study, follows. In Chapter 2 (Literature Review), the researcher presents an in-depth review of relevant research and scholarly literature in the fields of strategic management and leadership. In that section, he discusses known information about the study's topic regarding research findings and applicable theories. In Chapter 3 (Methodology), he describes step-by-step the methods and procedures used in this study and expands on themes introduced earlier in Chapter 1, such as the study's purpose, research design, and research questions. In Chapter 4 (Results), he presents the results of the data analysis and the findings and results of the study guided by its omnibus research question and hypotheses. In the last chapter of this dissertation study (Chapter 5: Discussion, Implications, and Recommendations), the researcher provides his interpretations of the study's results and recommendations for further research.

CHAPTER 2. LITERATURE REVIEW

During the past decade, top executives at corporations such as Walmart Stores (Morillo, McNally, & Block, 2015) and Tesla Motors (Mangram, 2012) reduced their organization's operating cost, improved overall efficiency, and achieved a sustainable competitive edge in their respective markets. Further insights into how the executives accomplished such feats revealed that they institutionalized a culture that promoted excellence in three key areas. First, they exploited latest advances in technology to optimize existing and new business capabilities; second, they emphasized the need for effective collaboration between teams and across multiple organizational hierarchies; and third, they empowered their workforce, advocated a sense of shared vision, and encouraged knowledge sharing (Heracleous & Werres, 2016).

Taken together, some researchers argued that these and other critical success factors stem from established models in multiple disciplines including strategic management, organizational leadership, and information technology (Coltman et al., 2015). Against this backdrop, in this chapter, the researcher presents a review of the pertinent literature to validate the position of the current study within the broader context of developments in the fields of strategic management, leadership, and information technology research. The rest of the chapter is split into sections that discuss (a) the method of searching for studies used for the review, (b) a theoretical orientation of the present study, (c) a review of the literature, (d) a synthesis of the research findings, and (e) a critique of the previous research methods.

Methods of Searching

The published studies that the researcher used for the literature review in this chapter came from multiple sources. He conducted the literature search over a three-year period starting in October 2014. To ensure sufficient coverage while minimizing publication bias (Kepes, Banks, McDaniel, & Whetzel, 2012), the researcher combined suggestions from Webster and Watson (2002) with the techniques from Boell and Cecez-Kecmanovic (2010). The systematic search strategy he used for this exercise comprised of the multiple stages shown in Figure 2.
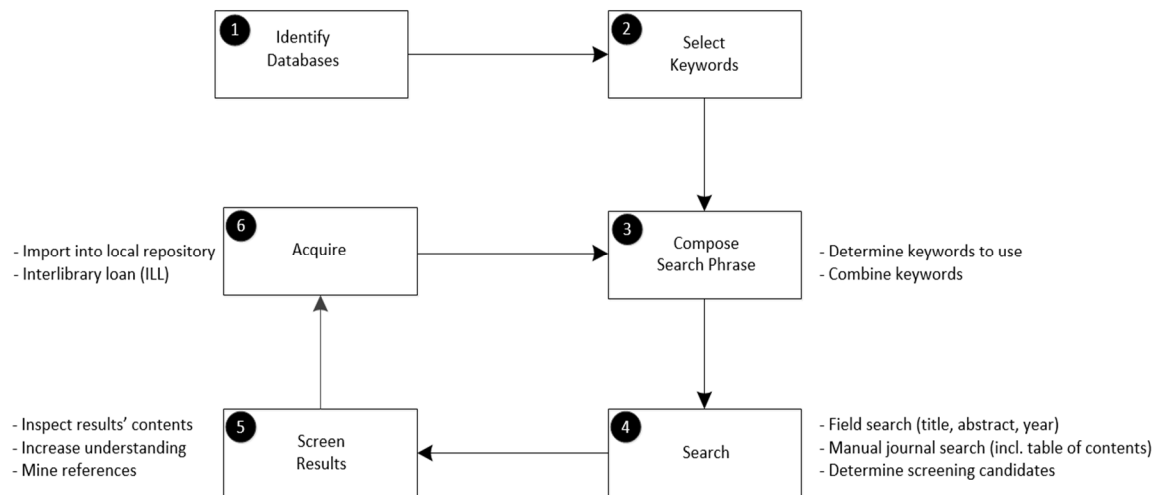
Figure 2. Systematic search strategy used for literature discovery.

The search began with a compilation of high-profile electronic search databases and top-rated peer-reviewed scholarly journals in the fields of business, management, leadership, and IT recommended by other scholars (Belfo & Sousa, 2013; Kwan, Chan, & Lam, 2012; Vessey, Ramesh, & Glass, 2002). The databases used for the exercise were Google Scholar, Business Source Complete, Academic Search Premier, ProQuest Dissertation & Thesis, and Microsoft Academic Research. The peer-reviewed scholarly

journals searched were *MIS Quarterly*, *Leadership Quarterly*, *Journal of Management Information Systems*, and *Information Systems Research*. Next, the researcher created a list of all the constructs identified in the research topic and research questions and used these as filters for preliminary database searches. The constructs used were *strategic alignment*, *leadership*, *CIO*, *business strategy*, *IS strategy*, *transformational leadership*, and *transactional leadership*.

On several occasions, preliminary searches returned too many results; thus, to streamline the search, the researcher composed several search phrases using multiple constructs at a time. Then, he used each search phrase together with a date range to narrow the search results. An example of a search phrase used was "*CIO leadership strategic alignment*." The date range used for each search was determined based on the search target. For searches focused on finding seminal studies, the search range spanned the last 40 years (i.e., beginning from the mid-1970s); for all other cases, the search targeted only studies published within the last seven years. For example, one database search for recent peer-reviewed articles using the search phrase "CIO leadership strategic alignment" as the filter for a title search, and later an abstract search, returned two matches—Banker et al. (2011) and Karahanna and Preston (2013).

After each search, the researcher screened the contents of all matching results and determined those to include for the review. Then, he acquired and saved a PDF version of each published article on his computer hard drive and also imported that study's metadata into RefWorks—a web-based bibliography management tool. It is worth mentioning that although none of the dissertations found during the search period made it into the final list, the researcher mined and found several useful references in dissertations, as well as

conference papers, books, and other articles. In most cases, further insights gleaned from the mining steps resulted in new searches that uncovered other relevant studies. The researcher repeated the search steps several times during the search period until he reached a saturation point in the literature. At the end of the search, there were 628 artifacts in total, and out of these, he used 189 peer-reviewed journal articles, nine books, and three conference papers for the literature review.

Theoretical Orientation for the Study

In Chapter 1, the researcher introduced the study's high-level conceptual model and described the four primary constructs (i.e., leadership style, business strategy, IS strategy, and strategic alignment) together with a priori deduced assumptions about their relationships (see Figure 1). This section presents the description of the detailed conceptual model that shaped the scientific perspective from which he conducted the study (Figure 3). In particular, this model shows the study's second order constructs and their theorized bivariate relationships.

Leadership theorists (e.g., Antonakis & House, 2014; Avolio, 2007; Bass & Riggio, 2006) distinguished between two dominant forms of participatory leadership—transactional and transformational leadership. Transactional leaders bind their followers to contracts that culminate in the exchange of valuable substances, while transformational leaders exhibit moral characters and ethical values that followers identify with and emulate. For this study, the researcher considered leaders who consistently demonstrated high levels of both transactional and transformational leadership as practicing mixed leadership (Zhu, Riggio, Avolio, & Sosik, 2011).
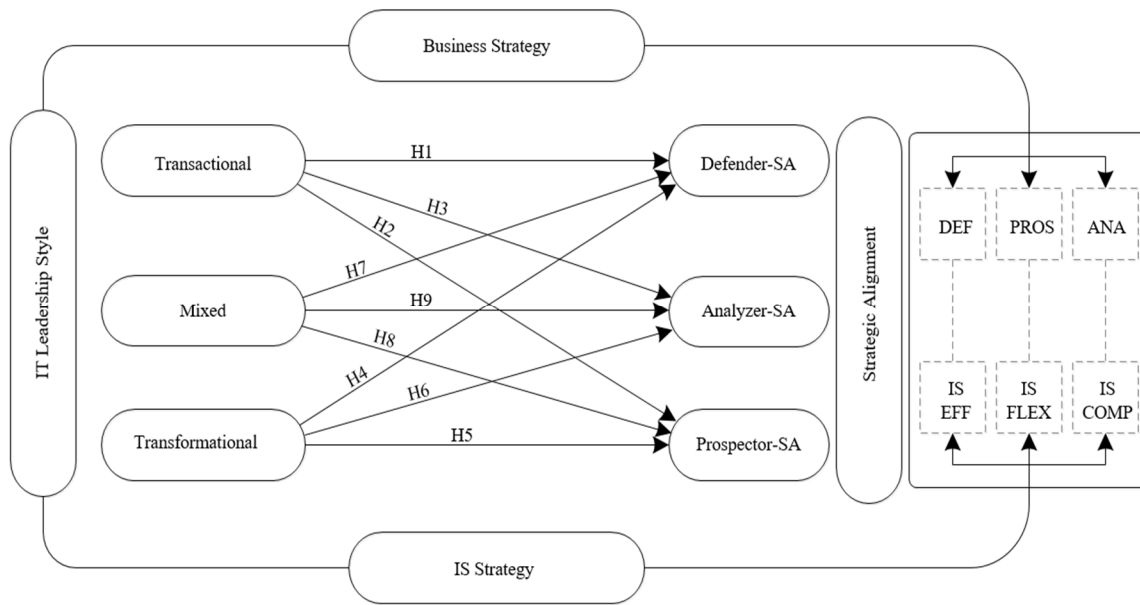
Figure 3. Detailed conceptual model for the study. DEF = Defender business strategy; PROS = Prospector business strategy; ANA = Analyzer business strategy; SA = Strategic Alignment; H1…H9 = Hypotheses. IS EFF = Efficiency; IS FLEX = Flexibility; IS COMP = Comprehensiveness. Defender-SA, Prospector-SA, and Analyzer-SA represent strategic alignment for defenders, prospectors, and analyzers respectively.

Business strategy is an adaptive behavior of organizations that manifests as three common competitive strategies—defender (DEF), prospector (PROS), and analyzer (ANA; Miles & Snow, 1986; Miles et al., 1978). Defenders protect their current market position, prospectors seek new market opportunities, and analyzers do both contemporaneously (i.e., protect the current market and find new opportunities in areas opened up by prospectors). Sabherwal and Chan (2001) combined previous works on business strategies from Miles et al. (1978) with Henderson and Venkatraman's (1993) strategic alignment model (SAM) in their operationalization of business strategy and IS strategy. The researchers conceptualized IS strategy as a critical component of organization strategy that focuses on the use of IS to achieve three purposes—efficiency (IS EFF), flexibility (IS FLEX), and comprehensiveness (IS COMP). Then, Sabherwal

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and Chan argued for an ideal profile of strategic alignment whereby defenders rely on IS for efficiency, as denoted by the dotted line between DEF and IS EFF (Figure 3). Prospectors rely on IS for flexibility (i.e., the dotted line between PROS and IS FLEX), and analyzers rely on IS for comprehensiveness (i.e., the dotted line between ANA and IS COMP). Moreover, they submitted that each of the three ideal profiles results in a corresponding strategic alignment arrangement, which the study's model depicts as Defender-SA, Prospector-SA, and Analyzer-SA (Figure 3). Hence, like Sabherwal and Chan, this study's conceptual model shows that organizations achieve strategic alignment when the realized business strategy and IS strategy match the ideal profile.

In what is now considered as a first attempt by researchers to understand potential relationships between leadership styles and strategic alignment, Shao et al. (2012) proposed that transactional leaders are better suited for defenders. The researchers also proposed that transformational leaders are better suited for prospectors and that leaders who apply mixed leadership are better suited for analyzers. However, before the present study, there was no empirical evidence to assess the validity of these propositions.

In developing this study's conceptual models, the researcher combined the theoretical perspectives described earlier with concepts from RBV (Barney, 1991; Drnevich & Croson, 2013). Then, he posed the omnibus research question (RQ) and nine subquestions (i.e., SQ1, SQ2, SQ3, SQ4, SQ5, SQ6, SQ7, SQ8, and SQ9). From those questions, he developed ten hypotheses (H, H1, H2, H3, H4, H5, H6, H7, H8, and H9). Figure 3 shows the nine hypotheses for the subquestions, and Chapter 3 provides further details on all ten hypotheses.

Review of the Literature

This section presents the researcher's review of historical developments, as evidenced by published research in the fields of strategic management, leadership, and information technology that are relevant to the research topic under investigation: *An Examination of Leadership Style and Business strategy for Business-IS Strategic Alignment*. To this end, the researcher grouped the contents presented next under four subsections that align with the study's themes: (a) strategic hierarchy, (b) business strategy, (c) strategic alignment, and (d) leadership.

Strategic Hierarchies

Early strategic management researchers (e.g., Venkatraman, 1989a) conceptualized strategy at three levels: corporate, business, and functional. Corporate strategies cater to the overall portfolio and relationships across multiple business units; business strategies focus on strategic actions within business units that enable and sustain competitive advantage. Functional strategies represent lower-level strategic activities that serve to fulfill business plans through resources allocation. Those early researchers believed that IS strategies belonged at the functional level; hence, they assumed that IS strategy only served to support chosen business strategies. Modern researchers (e.g., Henderson & Venkatraman, 1993; Gerow et al., 2014) questioned the classical hierarchical view of strategy and argued that it was too restrictive. In particular, they claimed that the subordination of functional strategies to business strategy could limit the exploitation of potential sources of competitive advantage that lie at the functional level (Chen, Mocker, Preston, & Teubner, 2010).

Business Strategy

  Scholars hold a diverse range of views on business strategy. One group, including Porter (1991), saw strategy as the creation of a unique and valuable position (see also Nag, Hambrick, & Chen, 2007). Others, such as Barney (1991) and strategy-as-practice theorists (e.g., Foss, 2011; Vaara & Whittington, 2012) viewed strategy as the means by which organizations leverage critical resources and capabilities across business units to create value. Another group of scholars saw strategy as the expressions that convey the ambitions found in mission statements (Mantere, 2013; Ocasio & Radoynovska, 2016). Taken together, these scholars submit that organizational strategy involved making choices that influence future outcomes; furthermore, they believe that strategies form the blueprints that guide the way organizations function and determine how organizations actualize their objectives in the marketplace.

  Whereas strategy formulation usually followed an intentional process, some scholars (e.g., Steensen, 2014; Whittington, Cailluet, & Yakis-Douglas, 2011) observed that the patterned activities of certain influential organizational actors, such as the CEO, resulted in the formation of implicit strategies. For example, Steensen (2014) noted that when senior executives communicate policy changes, the face value of such communication sometimes contradicts the actual changes taking place within the organization. Therefore, some scholars (e.g., Floyd, Cornelissen, Wright, & Delios, 2011) have alluded to distinguishing a *realized* strategy, which represents what happened, from an *intended* strategy, which represents planned and formalized strategies communicated to stakeholders.

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Indeed, certain qualities distinguish effective organizations from their ineffective counterparts. Effective organizations establish and maintain healthy relationships with their internal and external environments while seeking ways to expand market share (Miles et al., 1978; see also Oghojafor et al., 2012). Such organizations have flexible internal structures and processes that enable them to respond to change quickly; moreover, they establish and implement strategies that guide their current and future practices. The key themes captured in scholars' organizational effectiveness models (i.e., strategy, process, and structure) continually recurred in the modern organization literature. For example, in her examination of reasons for organizational change, Glor (2014) observed that whereas organizational change was inevitable, what mattered more was how quickly and effectively organizations adapted their strategies to deal with changing circumstances. Elsewhere, Moliterno and Mahony (2011) found that organizations with dynamic organizational structures performed better at adapting their strategies when dealing with change, because such organizations had better knowledge management processes, which are vital contributors towards gaining a sustainable competitive advantage (for similar findings, see also Alaa, 2009; Ramezan, 2011).

Business strategy types. Miles et al. (1978) illuminated the concept of organizational adaptability in ways that are congruent with some of the strategic management theorists that came before them. For example, Child (1972) argued that whereas environmental conditions predicted organizational behavior, management choices determined organizational structures and processes (see also Lin, Tsai, & Wu, 2014; O'Reilly & Tushman, 2013). Miles et al. (1978) argued that organizations strategize to adjust to change triggered by internal or external forces, and they theorized

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that organizational efforts to adapt to change result in a central strategic management concept known as an "adaptive cycle" (p. 548). The researchers remarked that an adaptive cycle represents a means of conceptualizing the major elements of adaptation, which comprises a collection of strategies, structures, and processes.

Furthermore, Miles et al. (1978) theorized that an adaptive cycle arises from the strategic choices businesses make as they strive to achieve their goals by addressing aspects of their entrepreneurial, engineering, and administrative problems (Walker, 2013). Entrepreneurial problems involve choices about the identification of new opportunities and the products and services an organization must pursue, as well as the market segment the organization must target. Engineering problems raise concerns related to operationalizing entrepreneurial problems; for example, decisions around appropriate technologies to produce and distribute chosen products and services proffer solutions to engineering problems.

Administrative problems involve choices related to the appropriate organizational structure and business processes, and organizations within an industry exhibit different patterns of adaptive behavior as they strive to find solutions to their entrepreneurial, engineering, and administrative problems (Miles et al., 1978). In studying the adaptive behavior of several organizations, researchers observed three strategic types of organizations: defenders, prospectors, and analyzers (Miles et al., 1978; see also Gnjidic, 2014; Shoham, Evangelista, & Albaum, 2002). Each typology applied a unique strategy and a predictable configuration of technology, structure, process, and environmental conditions when dealing with its chosen market.

Leaders of defender organizations focus on maintaining stability and efficiency within their industry as they cater to the needs of a subset of their market segment. Common characteristics among defender organizations include narrow market focus, high profitability, significant investments in a single core technology, an emphasis on cost control, product quality, technological efficiency, intensive planning, and centralized organizational management/control. Prospectors operate in a more dynamic form compared to defenders. They are flexible in identifying and exploiting new products and market opportunities in their industry. Other characteristics of prospectors include an emphasis on research and development, broad products and market segment, a flexible range of technology choices, dynamic and decentralized organizational management/control, and significant investments in individuals who possess the ability to identify potential opportunities. Analyzers assume a middle ground between defenders and prospectors by combining unique attributes of both defenders and prospectors in a single organization. In particular, analyzers strive to achieve a balance by minimizing exposure to risks and maximizing the opportunity for profit simultaneously. That is, successful analyzers follow the lead of key prospectors by imitating promising new products and services opened up by prospectors and remaining committed to maintaining operating efficiency in their stable product and market segments simultaneously.

Although Miles et al. (1978) encountered a fourth type of organization, which they referred to as Reactors, it did not qualify as a strategic organization type because reactor organizations do not exhibit predictable behavioral patterns, and hence represent a form of strategic failure (Blackmore & Keith, 2013). In other words, whereas the three strategic organization types (i.e., defenders, prospectors, and analyzers) showed a

consistent blend of strategy, technology, structure, and process, reactor organizations did not.

Other views on strategy types. In Porter's (1991) study on competitive strategies, the researcher adopted a position on adaptive choices congruent with those of Miles et al. (1978). Porter argued that organizations succeed because they manage two key competencies well. First, they formulate effective strategies that guide them on the right paths toward success; second, effective organizations align their strategies with their external environment in ways that form an integrated whole (see also Heracleous & Werres, 2016). However, some critics have argued that Miles et al.'s (1978) adaptive cycles and adaptive behaviors are static concepts; hence, they cannot fully predict aspects of transformations that are possible in integrated organizations (Gnjidic, 2014). Others have argued that the adaptive model represents an abstract concept. Therefore, it lacks the operational classification of strategic types (Conant, Mokwa, & Varadarajan, 1990) and quantitative grounding (Blackmore & Keith, 2013), and its applicability in industries outside of those presented as evidence by Miles et al. (1978) is questionable (Shoham et al., 2002).

Researchers such as Chen et al. (2010) remarked that whereas most strategic management scholars focused on strategy at the corporate level (e.g., Oghojafor et al., 2012; Steensen, 2014), the application of strategy in the field of information technology has not attracted the same degree of attention from scholars. Hence, the next section presents the researcher's review of relevant studies focused on the use of strategy in the information technology field.

Strategic Alignment

The application of business strategy theories in information technology (IT), information management (IM), and information systems (IS) began more than four decades ago (Gerow et al., 2014). King (1978) developed a three-step unidirectional approach for aligning business strategies to the creation of information systems (IS) components. As part of his study's prescriptive model, King recommended that practitioners adopt a three-step sequential approach to IS component creation. Step one, identify an organization's strategies, including its mission and objectives; step two, formulate IS strategies based on the organization's strategies identified in the first step, and step three, use the IS strategies developed in the second phase to guide the creation of IS components. King argued that this systems creation approach, which links IS to an organization's purpose, had the potential to improve both an organization's operating efficiency and its overall effectiveness. Some critics have also cautioned that King's (1978) model failed to exploit the full potential of IS because it only permits a one-way influence relationship in which business strategy informs IS strategy. Furthermore, these critics (e.g., Coltman et al., 2015; Gerow et al., 2014) argued that innovation, which is a critical contributor to competitive advantage, results when IS strategy informs business strategy and vice versa. Therefore, organizations cannot possibly achieve competitive advantage using King's (1978) model alone.

Strategic alignment model (SAM). Henderson and Venkatraman (1993) developed SAM, which provides a descriptive model that scholars and practitioners could use to exploit the potentials of IT for organizational transformation (Figure 4). SAM identifies four domains of strategic choice: *business strategy*, *IT strategy*, *organizational*

infrastructure and processes, and *IS infrastructure and processes*—with three constituent

dimensions for each domain. It describes the possible ways in which directional

combinations of the four domains—two internal domains and two external domains—can

interact to influence organizational transformation endeavors (Gerow et al., 2015).

Furthermore, SAM views strategic alignment as a dynamic concept comprised of several

dynamic components (strategy, technology, process, and structure) orchestrated in ways

that can enable organizations to adapt to change instigated by internal and external forces.

SAM introduced both bivariate and multivariate perspectives as alternate ways

organizations achieve strategic alignment. Bivariate-fit arrangements involve only two of

the four domains simultaneously, whereas multivariate relationships, in contrast,

represent cross-domain interaction/influence relations involving three or all four domains,

simultaneously (Avison, Jones, Powell, & Wilson, 2004). There are two common types

of bivariate arrangements: *intellectual alignment* (or strategic integration) and

operational alignment (or functional integration). Intellectual alignment represents a link

between the two external domains (business strategy and IT strategy) and "it deals with

the capability of I/T functionality to both shape and support business strategy"

(Henderson & Venkatraman, 1993, p. 8). In other words, intellectual alignment serves as

an important source of strategic advantage to organizations and plays a key role in the

elevation of IT from its traditional support role to a strategic posture (Belalcazar & Diaz,

2016). Operational alignment, the second type of bivariate arrangement, represents a link

between the two internal domains (organizational infrastructure and processes, IS

infrastructure and processes). It addresses capabilities related to technology specific

functional choices and service delivery.
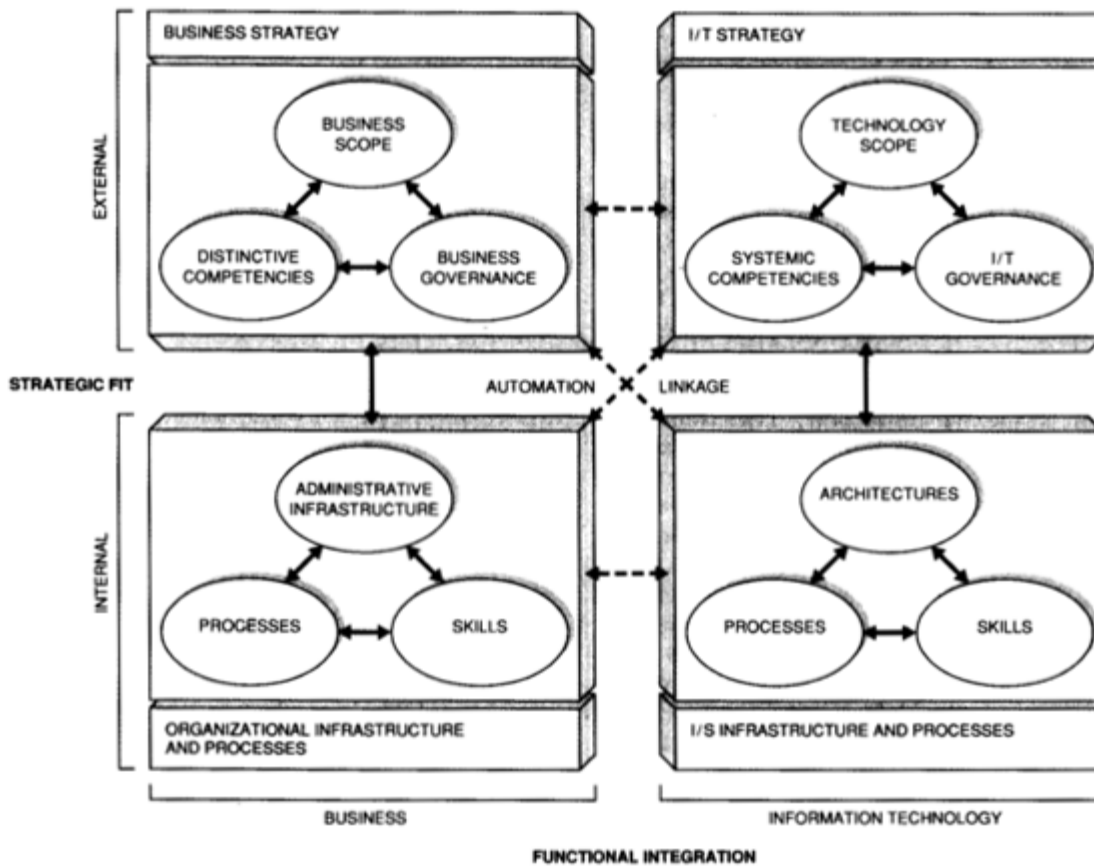
Figure 4. Four domains and twelve dimensions of SAM. From "Strategic alignment: Leveraging information technology for transforming organizations" by J. C. Henderson and N. Venkatraman, 1993, *IBM Systems Journal, 32*, p. 8. Copyright 1993 by the International Business Machines. Adapted with permission.

In SAM, Henderson and Venkatraman (1993) identified four dominant multivariate cross-domain alignment perspectives: *strategy execution*, *technology transformation*, *competitive potential*, and *service level*. On the one hand, both strategy execution and technology transformation were inspired by the recognition of business strategy as the key anchor that informs the other three domains in strategy formulation and execution. Under these two multivariate cross-domain arrangements, top executives formulate a business strategy that dictates how other domains (IT strategy, organizational infrastructure and processes, IS infrastructure and processes) function. On the other hand,

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both competitive potential and service level arrangements represent an approach to strategic alignment in which IT strategy serves as the key anchor that informs the other domains. That is, in these two multivariate cross-domain arrangements, top executives formulate IT strategy, which in turn drives business transformation (competitive strategy) or optimizes internal IT operations (service level).

Henderson and Venkatraman (1993) put forward some propositions including two, which had profound consequences on how scholars and practitioners viewed strategic IT management. First, they argued that effective IT management requires a balance among the choices made from the internal and external dimensions of business and IT domains. The researchers believed that strategy formulation and strategy execution are equally relevant contributors to strategic outcomes. Simply put, SAM posits that management's failure to adequately account for aspects of the four domains during strategy formulation and execution results in sub-optimal strategic alignment outcomes.

Second, Henderson and Venkatraman (1993) emphasized the importance of two critical requirements in achieving effective strategic alignment: *completeness* and *validity*. Completeness ensures the adequate consideration of all four domains of SAM in strategic management decisions, while validity ensures that no single domain (i.e., business strategy, IT strategy, organizational infrastructure and processes, IS infrastructure and processes) serves as the sole anchor that drives strategy formulation and execution. In other words, SAM's prescription for the most effective way to optimize strategic alignment outcomes advocates complete and valid combinations of multivariate cross-domain arrangements over bivariate alternatives (Gerow et al., 2015).

Some critics have argued that the major limitations of SAM include the high level of resources (time and cost) required to succeed, and a lack of consistency across assessment criteria (Cuenca, Boza, & Ortiz, 2011). Further, they argued that since organizational survival requires both adaptive and directive actions, managers must identify and manage the key resources across all four domains so that those resources can co-evolve with changes to strategic approaches (Avison et al., 2004). Furthermore, other critics (e.g., Aversano, Grasso, & Tortorella, 2012) noted that uncertainties remained on appropriate criteria for strategic alignment assessments, which spans measures such as business value, customer satisfaction, and organizational performance (see also Coltman et al., 2015).

The transition from conceptual to operational domains of strategy. Attempts at operationalizing measures for strategic constructs began more than two decades ago. For example, Venkatraman's (1989a) 29-item instrument conceptualized business strategy as comprising six dimensions: *aggressiveness*, *analysis*, *defensiveness*, *futurity*, *proactiveness*, and *riskiness*. Aggressiveness refers to the extent of a business's engagement in activities, such as innovation and market development, which improve market share or competitive position at a faster rate than the competition in its chosen market (Chan & Reich, 2011). Analysis, which defers from the analyzer business strategy type, refers to a business's ability to address the challenges it encounters and the effectiveness of decision-making in achieving set objectives. The defensiveness strategic dimension, which is similar to the defensive strategic typology, addresses the extent to which a business emphasizes and pursues activities aimed at cost reduction and efficiency. Futurity addresses the plans, approaches, and processes a business emphasizes

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as it moves towards a desired future state. Proactiveness refers to proactive, rather than reactive, behaviors a business exhibits in its ongoing quest to remain viable in its chosen market. The last strategic orientation dimension, riskiness, refers to a business's appetite for risk, which is reflected in its criteria for resource allocation and pattern of decision-making (Gerow et al., 2014). Out of the 29 indicators, four measured aggressiveness, six measured analysis, four measured defensiveness, and five measured futurities, proactiveness, and riskiness.

Venkatraman's (1989a) validation study, which sampled 202 CEOs, found that all 29 indicators validly operationalized the six dimensions of business strategy. Although dated, the study's instrument, commonly referred to as STROBE (strategic orientation of business enterprises), emphasized pertinent principles for instrument validation and had continued to serve as a reference model for modern strategic alignment research (Belfo & Sousa, 2013). Sabherwal and Chan (2001) examined relationships between strategic alignment and business performance while accounting for the moderating effects of each strategic business typology. In their nonexperimental correlational study, the researchers used STROBE, SAM, and Miles et al.'s (1978) strategic typology model as the theoretical foundation. They distinguished between three types of strategies commonly confused by scholars and practitioners: IS strategy, IT strategy, and IM strategy. IS strategies focus on systems and business applications; IT strategies cover technology related policies, such as architecture, standards, security, and risk management; and IM strategies address concerns related to social and administrative aspects (Gerow et al., 2015; Sabherwal & Chan, 2001). Moreover, they focused on the content of strategy, not

process, on IS strategy rather than IT or IM Strategy, and on realized strategy as opposed to planned strategy.

Sebherwal and Chan (2001) used STROBE to assess business strategy, and they developed a 17-item instrument, which had each item anchored on a five-point Likert scale, for IS strategy assessment. The researchers drew parallels between IS strategies and four common information systems: *operational support systems*, *market information systems, inter-organizational systems*, and *strategic decision support systems* (Figure 5). After that, Sabherwal and Chan (2001) conceptualized IS strategy as a composite of these four information systems types. Then, the researchers built an ideal profile by pairing each of the four IS strategy types with all three business strategy types from Miles et al.'s model.

In their validation study, Sabherwal and Chan (2001) used CEO-CIO matched-pair survey data from 226 organizations across four industries in the United States and Canada. After normalizing the data to eliminate the effects of industry types, the researchers calculated each organization's strategic alignment value based on the proximity of its intended (or planned) business strategy and IS strategy from their realized equivalents (Belfo & Sousa, 2013). Then, they compared the results to those of business performance measures and found that more organizations adopted an analyzer business strategy compared to the number of defender or prospector organizations. In other words, this study's results showed that more organizations preferred to operate in a hybrid mode of embracing both stability and aggressiveness simultaneously. Furthermore, Sabherwal and Chan (2001) concluded that defender organizations focused on maintaining operational efficiency, prospector organizations emphasized flexibility,

and analyzers focused on balancing both efficiency and flexibility. More important, the

researchers found that strategic alignment has a significant positive influence on

organizational performance for some organization types, but not all. In particular,

prospectors and analyzers recorded positive performance gains; however, defender

organizations did not experience performance gains when their business and IS functions

were strategically aligned. One limitation of Sabherwal and Chan's (2001) study was its

use of a new IS strategy assessment instrument that researchers had not thoroughly

validated.
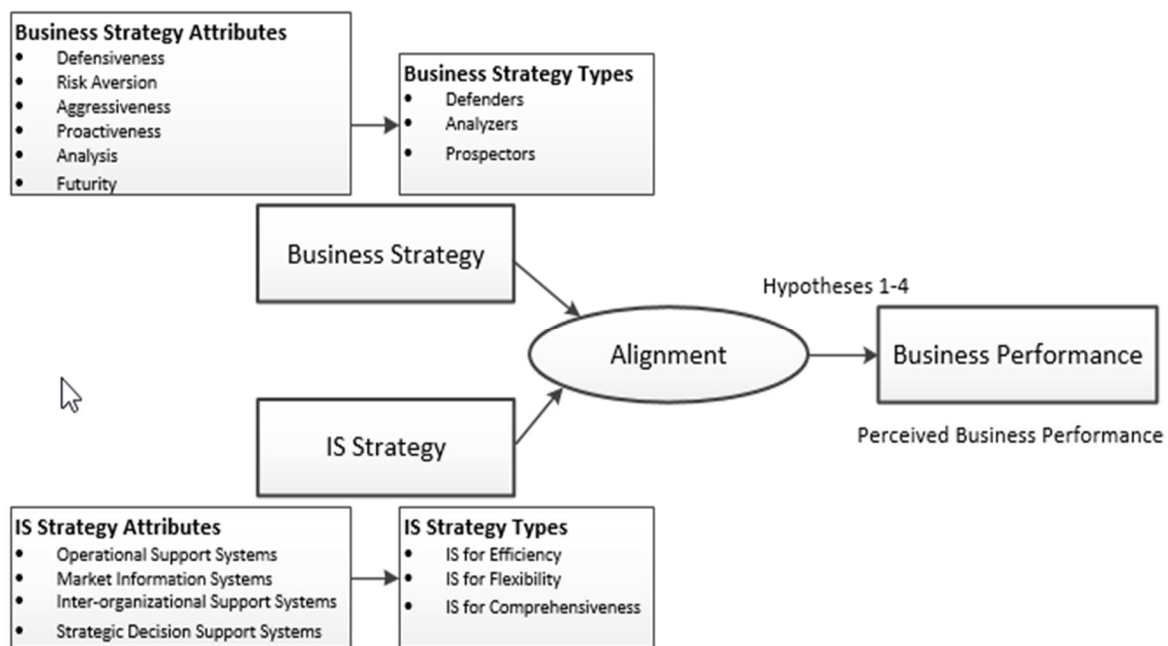
Figure 5. Sabherwal and Chan's alignment-performance model. From "Alignment between business and IS strategies: A study of prospectors, analyzers, and defenders" by R. Sabherwal and C. Chan, 2001, *Information Systems Research, 12*, p. 13. Copyright 2001 by the Information Systems Research. Adapted with permission.

Alignment paradox. Early results in alignment research demonstrated

insignificant influence relationship between strategic alignment and organizational

outcomes (Carr, 2003; Oh & Pinsonneault, 2007; Tallon & Kraemer, 2003). The critics

argued that strategic alignment consumed excessive resources, which resulted in stagnation and inflexible outcomes, and therefore, it could not possibly enable and sustain competitive disadvantage. For example, Tallon (2007) called on leaders to direct valuable resources towards alignment efforts at the micro process level, as opposed to the usual strategic level advocated by scholars (cf. Cataldo, McQueen, & Hardings, 2012). Against this backdrop, Gerow and colleagues embarked on three independent studies where they focused on understanding the factors responsible for alignment paradox (see Gerow et al., 2014, 2015, 2016). In their first study, the researchers examined the effects of strategic alignment on organizational performance while accounting for the effects of potential moderator and mediator variables (e.g., respondent type, strategic alignment type, choice of measurement instrument). Gerow et al. (2014) observed that most researchers used either a *single measure* or *fit model* to assess strategic alignment. The single-measure approach uses one question, usually on a Likert scale, to measure a respondent's perception of the extent of strategic alignment (Boyd, Bergh, Ireland, & Ketchen, 2013). The fit model, which is a more objective approach, uses separate indicators to measure business strategy and IS (or IT) strategy independently. To derive the extent of strategic alignment for the fit model, researchers aggregate each respondent's answers for all indicators. In short, some scholars (e.g., Henseler & Sarstedt, 2013) believe that the fit model approach is more rigorous and better suited for alignment studies than a single measure approach.

Gerow et al. (2014) used a meta-analytic approach as part of a nonexperimental correlational study to examine relationships between strategic alignment and organizational performance constructs. The researchers assessed strategic alignment

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using SAM dimensions and conceptualized performance as growth (e.g., sales gains, market share gains, increased competitive advantage) and profitability (e.g., return on investments, higher stock value). After that, Gerow et al. (2014) analyzed data from 71 related previous studies published in top journals and found that alignment dimensions such as operational alignment had a significant positive influence on organizational performance constructs such as productivity. That is, they found that organizations with properly aligned business and IS (or IT) strategies achieved higher-level performance than their non-strategically aligned counterparts. Furthermore, the researchers observed that moderator variables, such as choice of alignment measure (e.g., single measure versus fit model) and respondent types (e.g., single-individual versus matched-pair), influenced the relationship between strategic alignment and organizational performance.

Based on conclusions from studies such as Gerow et al. (2014), where the findings showed significant positive influence relationships between alignment and performance, researchers rejected earlier claims of an alignment paradox. These researchers (e.g., Masa'deh & Shannak, 2012) argued that previous contradictions resulted from inadequate considerations for the effects of moderators and inconsistent interpretations of what alignment meant.

Reassured by earlier findings, in their second study (Gerow et al., 2015), the researchers examined and addressed inconsistencies in the interpretations and measures of alignment. Using SAM as a foundation, Gerow et al. (2015) observed that although several researchers used one of three alignment dimensions (i.e., intellectual alignment, operational alignment, and cross-domain alignment), only a few of them stated the alignment dimension under investigation. To address this concern, the researchers

distinguished between six alignment types commonly referenced by strategic studies: *business alignment*, *intellectual alignment*, *IT alignment*, *operational alignment*, and two types of *cross-domain alignments*—one each for business and IT strategies. These six alignment types correspond to the six bivariate-fit arrangements in SAM (see Figure 6). Business alignment refers to the extent of alignment between the external and internal business domains (i.e., business strategy and organizational infrastructure and processes), and intellectual alignment refers to the degree of alignment between the two external domains (i.e., business strategy and IT strategy). IT alignment relates to the extent of alignment between the external and internal IT domains (i.e., IT strategy and IS infrastructure and processes), and operational alignment relates to the degree of alignment between the two internal domains (i.e., organizational infrastructure and processes and IS infrastructure and processes). The first cross-domain alignment refers to the extent of the alignment between the external business domain and the internal IT domain (i.e., business strategy and IS infrastructure and processes). The second cross-domain alignment refers to the extent of the alignment between the external IT domain and the internal business domain (i.e., IT strategy and organizational infrastructure and processes).
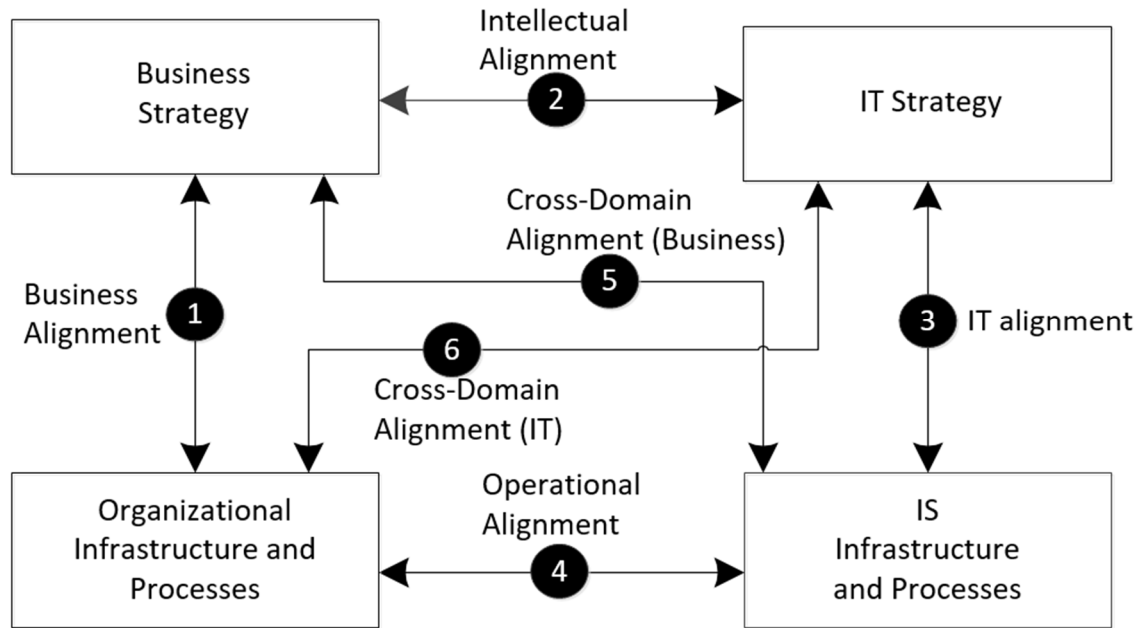
Figure 6. Six types of alignment for SAM domains.

Armed with a clear understanding of the different alignment types, Gerow et al. (2015) consolidated all six types into a single unified measurement model comprising 38 indicators that assessed each alignment type—eight items for intellectual alignment, and six items for each of the other five types. In their model-validation study, the researchers used data obtained from 140 CIOs across the United States. Using financial performance as the dependent variable and six alignment types as independent variables, they performed correlational analysis to verify whether the study's model correctly predicted relationships between each of the six alignment types and performance. The researchers' results showed that each of the alignment types had a significant direct influence on performance. In particular, competitive potential (i.e., the combination of intellectual alignment and business alignment) had the largest effect on performance, and technology transformation (i.e., the combination of intellectual alignment and IT strategy) had the least effect on performance (Gerow et al., 2015). Furthermore, the researchers observed

that controlling the effects of moderators, such as organization size and type, influenced the alignment-performance relationship. Findings from this study and others such as Fink (2011) revealed that alignment types combined with certain capabilities and demographics (e.g., organization size) could vary the alignment's effect on performance; however, this viewpoint conflicts with the findings of Chae et al. (2014).

The studies by Gerow and colleagues had several limitations. Gerow et al. (2015) used a single-individual (CIO) response instead of a matched-pair CEO-CIO response to assess alignment types that may have introduced common method bias (Siemsen, Roth, & Oliveira, 2010). Next, the meta-analytic study by Gerow et al. (2014), in which the researchers relied on 71 other studies, could have benefited from the inclusion of additional alignment studies. Hence, publication bias—a common concern with meta-analytic approaches (Kepes et al., 2012)—could have influenced the study's outcome. Also, the uneven spread of research across different alignment types could have resulted in greater uncertainties while interpreting the study's findings.

Antecedents and consequences of alignment. Both Chan and Reich (2007a) and Gerow et al. (2016) found that several factors within alignment's nomological network contributed significantly towards its relationship with organizational outcomes. For example, Gerow et al. (2016) developed an omnibus model that integrated constructs of alignment, including two alignment types (intellectual and operational) and their antecedents (e.g., governance structure). Then, the researchers investigated the relationships between the model's constructs and three dimensions of organizational performance (financial performance, productivity, and customer benefits). Using RBV (Barney, 1991; Drnevich & Croson, 2013) as a theoretical foundation, Gerow et al.

(2016) predicted the effects of other factors in the alignment-performance relationship. The researchers found that factors such as IT investments, governance structure, trust, communication, knowledge exchange, and shared understanding were important actors in alignment's influence network. Gerow et al.'s (2016) conceptualization of alignment as a static event rather than a dynamic process of continuous adaptation and change could have limited the study's conclusions.

In an attempt to understand other antecedents of alignment, Chan et al. (2006) examined secondary data from two sources spread across five industries—banking, insurance, pharmaceuticals, auto parts, and academic institutions. The researchers focused on verifying commonly held views among scholars and practitioners that alignment is beneficial to all organizations regardless of type (e.g., public, private), size (e.g., small, medium, large), and strategic orientation (e.g., defender, prospector, analyzer). They controlled for the effects of industry type and then used a correlational analytic approach to examine the study's constructs. Chan et al. (2006) found that all organizations did not benefit equally from aligned business and IS strategies. In particular, Chan and colleagues found that organization size moderated the effect of strategic alignment on performance. Furthermore, they remarked that "while most types of organization benefit when managers invest resources to promote alignment, this does not appear to be the case for defender business firms" (p. 40). Then, they cautioned against investing valuable resources in aligning business and IS without an adequate assessment of an organization's unique situation. Other alignment antecedents Chan et al. (2006) identified include prior IS implementation success, planning sophistication, a

shared understanding between business and IT personnel, and environmental uncertainties.

The resource-based view (RBV) of a firm. Adopters of RBV gained recognition in the field of strategic management following Barney's (1991) examination of how organizations achieved and sustained competitive advantage (Bacha, 2012). They have established RBV both as a competence-based and knowledge-based model. As a competence-based model, RBV contributes to uncovering the resources organizations need for stability and growth (Drnevich & Croson, 2013); as a knowledge-based model, managers use RBV to conceptualize knowledge as a valuable, rare, and inimitable resource that uniquely defines organizations.

Some scholars (e.g., Leelien, 2010) argued that RBV serves as the theoretical foundation for most strategic management studies because it prescribed a model that enables organizations to classify resources according to their value, rareness, imitability, and substitutability (see also Pan et al., 2015). For example, Hinterhuber (2013) found that although most organizations possessed similar resources, only organizations that effectively utilized the critical resources at their disposal achieved and sustained a competitive advantage. Khodabandeh, Cavusoglu, and Benbasat (2015) believed that IT leaders could improve relationships with less-technical counterparts if they use more RBV terms and less technical jargon in their communications. For example, the researchers presented this example of how an RBV savvy CIO could communicate the need to invest in a new technology (Hadoop) to other executives:

> Hadoop is a new technology. [Value:] Deploying Hadoop increases our revenue by having competitive prices. [Rarity:] As far as I know, at the moment, none of our competitors are utilizing or deploying Hadoop. However, in a recent CIO

conference, I noticed that a couple of our competitors like X and Y have started planning on deploying Hadoop. [Imitability:] It takes us a year to completely deploy Hadoop. As for our competitors like Z and Y, I assume it takes them a year and a half considering their inability to pay high enough to hire best experts in the market. [Substitutability:] There is another technology, called Spark, in the market. Although it is highly praised by experts for its speed, it is at the early stage of development and it can take three years to be mature to be deployed. [Value:] Hadoop will cost us up to $200K per year. (Khodabandeh et al., 2015, p. 5)

In the example given by Khodabandeh et al. (2015), the CIO carefully chose phrases that emphasized RBV terms (e.g., value, rarity, imitability, and substitutability) and avoided using technology jargons such as Java, RDBMS, SOAP, or HTTP.

Enablers and inhibitors of alignment. Researchers conceptualized alignment as an end state in studies such as Baker, Jones, Cao, and Song (2011) where they examined the factors that enable and inhibit alignment. They argued that the end-state perspective on alignment availed studies the opportunity to assess an organization's state of alignment at a given point in time, and it encouraged the use of variance models, which are effective when examining factors that influence an outcome (cf. Rashidirad, Soltani, & Salimian, 2014).

Six dimensions of alignment. Luftman, Lyytinen, and Ben-Zvi (2015) built on the previous work by Luftman and Brier (1999), which examined enablers and inhibitors of alignment and identified six dimensions that promote alignment. They are (a) communication between business and IT personnel, (b) use of analytics to assess the value of IT, (c) approaches to IT governance, (d) nature of the partnership and collaboration efforts between IT and business, (e) the extent of IT initiatives, and (f) skills development. The researchers used structural equation modeling (SEM) techniques to assess three things. First, they examined the relationship between each of the six

dimensions and strategic alignment; second, they examined the relationship between strategic alignment and organizational performance; and then, they examined the relationship between each of the six dimensions and organizational performance. All paths in the study's model for the first and second tests were statistically significant, indicating that all six dimensions had a significant influence on strategic alignment and that strategic alignment, in turn, had a significant influence on organizational performance. However, similar to earlier observations by Coltman et al. (2015), they found that each of the six dimensions had an insignificant influence on organizational performance (Luftman et al., 2015). In other words, IT investments did not directly influence organizational performance, but rather the relationship quality between business and IT mediated their influence on organizational performance.

Shared domain knowledge. Bassellier and Benbasat (2004) studied how non-technical business skills possessed by IT professionals helped them accomplish three goals: (a) understand the business domain, (b) speak the language of business, and (c) interact with their business partners. The researchers examined data from of 166 IT professionals in two insurance companies. They found that shared domain knowledge and use of common vocabulary between IT professionals and their business counterparts had a significant influence on the relationship quality between business and IT (Reich & Benbasat, 2000; see also Jorfi, Nor, & Najjar, 2011).

In a related study in which the researchers focused on senior executives, Johnson and Lederer (2010) investigated whether a shared understanding of the role of IT between CIO and CEO influenced strategic alignment. In their nonexperimental correlational study, the researchers examined data from 202 CIO-CEO matched-pair survey responses.

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They found that a shared understanding of the role of IT between CIO and CEO facilitated strategic alignment in all cases studied, except on one occasion where the affected organizations showed a greater tolerance for risk (Johnson & Lederer, 2010; see also Jentsch & Beimborn, 2014).

       Knowledge Management. Dulipovici and Robey (2013) conducted a case study and examined how knowledge sharing across functional boundaries of an organization influenced strategic alignment. The researchers used social representation as a theoretical lens to investigate relationships between knowledge management systems (KMS), knowledge sharing practices, and strategic alignment, among four groups during the implementations of a KMS. In its simplest form, social representation theory posits that knowledge is subjective and context-driven, and in a given social context, human perceptions manifest through thoughts, feelings, and actions (Hoijer, 2011). Dulipovici and Robey (2013) observed that misalignment between business and IS domains resulted when important project artifacts—standards, policies, and procedures—were missing from KMS. Against this backdrop of observed misalignment due to limited knowledge sharing, the researchers believed that knowledge management practices influenced strategic alignment.

       Masa'deh and Shannak (2012) studied the influence of knowledge management (KM) and learning orientation (LO) on strategic alignment and organizational performance. The researchers examined 160 IT and business executives from as many for-profit organizations spread across four industries (banking, insurance, service, and manufacturing); they found that both KM and LO had a significant influence on strategic alignment. In particular, findings from other studies also showed that KM strategy was

vital for the creation, transfer, and application of organizational knowledge (see also Navedo-Samper, Ferrer, & Rivera-Ruiz, 2013). However, Masa'deh and Shannak (2012) argued that growth-focused organizations that invest explicitly in a KM strategy and channel their knowledge towards LO exploitation experience superior financial rewards.

Strategic alignment maturity model (SAMM). Modern scholars (e.g., Baker et al., 2011) and practitioners (e.g., Ahuja, 2012) focused on examining the dynamic and evolutionary nature of strategic alignment used Luftman's (2000) strategic alignment maturity model (SAMM) as their theoretical lens. In his seminal study, Luftman (2000) used SAM as a foundation and developed a tool that organizations could use to assess, achieve, sustain, and mature their strategic alignment practices. SAMM aimed to both maximize the effects of alignment enablers and minimize the effects of inhibitors (Luftman, Dorociak, Kempaiah, & Rigoni, 2008). SAMM is comprised of these six alignment maturity criteria (a) communications, (b) competency/value measurement, (c) governance, (d) partnership, (e) scope & architecture, and (f) skills (see Figure 7).

Communication addresses the social aspects that facilitate relationships between business and IT functions; examples include mutual understanding and knowledge sharing. The second criteria—competency/value measurement—refers to value creation and addresses aspects of alignment such as IT formal assessments, reviews, and continuous improvement. Governance represents a general oversight of activities, such as strategic planning, reporting/organizational structure, and prioritization processes. The fourth maturity criteria, partnership, covers concerns such as the role played by IT in business planning processes, trust for IT by the business, and shared objectives. Scope and architecture refer to approaches chosen, among alternatives for IT initiatives and

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addresses concerns such as standards, best practices, and flexibility in managing

emerging technologies.

COMMUNICATIONS
- Understanding of Business by IT
- Understanding of IT by Business
- Inter/Intra-Organizational
- Learning
- Protocol Rigidity
- Knowledge Sharing
- Liaison(s) effectiveness

COMPETENCY/VALUE MEASUREMENTS
- IT Metrics
- Business Metrics
- Balanced Metrics
- Service Level Agreements
- Benchmarking
- Formal Assessments/Reviews
- Continuous Improvement

GOVERNANCE
- Business Strategic Planning
- IT Strategic Planning
- Reporting/Organization Structure
- Budgetary Control
- IT Investment Management
- Steering Committee(s)
- Prioritization Process

SIX IT BUSINESS ALIGNMENT MATURITY CRITERIA

PARTNERSHIP
- Business Perception of IT Value
- Role of IT in Strategic Business Planning
- Shared Goals, Risk, Rewards/Penalties
- IT Program Management
- Relationship/Trust Style
- Business Sponsor/Champion

SCOPE & ARCHITECTURE
- Traditional, Enabler/Driver, External
- Standards Articulation Architectural Integration:
  - Functional Organization
  - Enterprise
  - Inter-enterprise
- Architectural Transparency
- Flexibility Managing Emerging Technology

SKILLS
- Innovation, Entrepreneurship
- Locus of Power
- Management Style
- Change Readiness
- Career crossover
- Education, Cross-Training
- Social, Political, Trusting Environment

Figure 7. Six SAMM criteria and their attributes. From "Assessing business-IT alignment maturity" by J. Luftman, 2000, *Communications of the Association for Information Systems, 4*, p. 12. Copyright 2000 by the Association of Information Systems. Adapted with permission.

The sixth maturity criteria—skills—refers to talent management, and it addresses

concerns related to leadership, training, and other human resource considerations. Figure

7 shows SAMM's six maturity criteria and their attributes (or key practice areas). These six maturity criteria correspond to the six most important enablers of strategic alignment (Khaiata & Zualkernan, 2009). Furthermore, several sources, including some discussed here (e.g., Luftman et al., 2015), remarked that SAMM's maturity attributes, which highlight key practice areas for strategic alignment focus, form part of the most scrutinized alignment antecedents.

Inspired by Carnegie Mellon's capability maturity model (CMM; Paulk, Curtis, Chrissis, & Weber, 1993), Luftman (2000) conceptualized SAMM as a continuous process improvement model. Similar to CMM, SAM has five ordered levels of strategic alignment maturity: level 1 (Initial/Ad Hoc), level 2 (Committed Process), level 3 (Established Focused Process), level 4 (Improved/Managed Process), and level 5 (Optimized Process). In summary, these maturity levels guide advancements and identify deficiencies in an organization's strategic alignment practices (Luftman et al., 2015). Although each maturity level includes all six maturity criteria and their attributes, they have different degrees of priorities at each level. Hence, an organization with superior strategically aligned business and IT practices occupies a higher maturity level than those that have less superior alignment practices.

Luftman (2000) observed that the accurate assessment of an organization's strategic alignment maturity level requires a team of evaluators comprised of executives from IT and business units. First, the evaluators derived the maturity level for each of the six SAMM criteria. Then, they assigned a maturity level of either 1, 2, 3, 4, or 5 to each criterion; after that, the evaluators consolidated the assigned maturity levels for all six criteria and arrived at an overall strategic maturity level for the organization. Following

the completion of a SAMM assessment, researchers recommend that evaluators develop a

roadmap that identifies the action plans for organizational alignment practice

improvement (Ahuja, 2012). In SAMM's validation study, Luftman examined 25 Fortune

500 companies and found that over 80% of the organizations he studied had level 2

(committed process) alignment maturity. Although dated, modern researchers (e.g.,

Kappelman et al., 2016) acknowledged that in his seminal study (Luftman, 2000), the

researcher revealed shortfalls in strategic alignment practices that have continued to

threaten the survival of modern organizations (see also Belfo & Sousa, 2013).

Other SAMM validation studies. Sledgianowski et al. (2006) examined the

relationships between management practices and strategic choices that facilitate

alignment. The researchers used a cross-sectional design and surveyed 150 IT and

business executives from 11 business units in eight organizations. They cross-validated

Luftman's (2000) 39-item SAMM instrument and reduced it to 22 items for a more

parsimonious representation of SAMM. Then, they tested whether the overall computed

maturity levels derived from the validated 22-item assessment instrument (independent

variable) correlates with the self-rated maturity levels derived from a single-item scale.

Sledgianowski et al. (2006) used a linear regression statistical technique, and the

researchers found that although the six maturity criteria explained 47% of the variability

in self-rated maturity, three maturity criteria—governance, partnership, and skills—did

not contribute significantly to self-rated maturity. Furthermore, they concluded that

frequent formal evaluation of IT investments had a positive effect on strategic alignment.

The study's limitations included low sample size, inadequate representation (data was

from only eight organizations in three industries), and failure to control for other factors, such as organization size and strategy.

Chen (2010) examined the relationship between strategic alignment maturity criteria and strategic alignment. The researcher used Sledgianowski et al.'s (2006) cross-validated SAMM instrument to obtain data from 130 business and IT executives across 22 large organizations. He assessed strategic alignment using an instrument comprised of 18 indicators that measured business strategy and IT strategy, separately. First, Chen (2010) computed each organization's overall maturity level; then, the researcher used the SEM (structural equation modeling) statistical technique to examine the relationships between SAMM's six maturity criteria (independent variables) and strategic alignment (dependent variable). Chen found a good fit between all but one of the hypothesized paths for the model's constructs. In particular, the researcher found that the average overall maturity level for the Chinese organizations studied was between level 2 (committed process) and level 3 (established focused process), a result that is congruent with Luftman's (2000) validation study of American organizations. Moreover, Chen (2010) found significant relationships between strategic alignment maturity constructs and strategic alignment; however, the researcher cautioned that despite the observed significant influence of governance maturity on strategic alignment, most organizations reported low governance maturity; consequently, Chen (2010) called for future studies to investigate further. The study's limitations included small sample size and lack of adequate considerations for environmental factors.

IT governance. Several modern researchers (including Orozco, Tarhini, Masa'deh, & Tarhini, 2015) considered Weill and Ross (2004) as arguably the most

comprehensive examination of organizational IT practices ever made. In their longitudinal study, which involved 256 organizations in 23 countries, Weill and Ross concluded that "effective IT governance is the single most important predictor of the value an organization generates from IT" (Weill & Ross, 2004, p. 11; see also Weill & Ross, 2009). Against this backdrop, modern scholars (e.g., Tallon, Ramirez, & Short, 2013) found that effective leaders relied on IT governance to provide needed oversight on IT practices because they used it to address the *what*, *who*, and *how* concerns about IT decisions. In simple terms, these three IT decision concerns translate to three important questions: (a) *what* decisions are needed? (e.g., choices on IT investments and prioritization); (b) *who* makes those decisions? (e.g., addressing organizational leadership and management responsibilities for IT); and (c) *how* do organizations make those decisions? (e.g., organizational structures, processes, and relationships needed for IT value creation; Rahimi, Moller, & Hvam, 2014).

  How IT decisions are made. In their seminal study, De Haes and Van Grembergen (2009) investigated the relationship between IT governance and strategic alignment. The researchers adopted a mixed methods research approach for the study, in which they analyzed data from 22 surveys comprised of six SAMM dimensions and three IT governance constructs (structure, processes, and relationships). Then, they conducted 18 interviews to understand the influence of IT governance at three levels of 13 financial services organizations in Belgium—strategic, management, and senior management levels. The researchers found that IT governance had a significant influence on strategic alignment. Elsewhere, other researchers (e.g., Bermejo, Tonelli, Zambalde, Santos, & Zuppo, 2014; Nfuka & Rusu, 2011) found similar results in multiple international

locations. Furthermore, De Haes and Van Grembergen (2009) found that whereas

organizations required all three IT governance constructs for effective and successful

governance implementation, some of those constructs were easier to implement than

others. In particular, the researchers and others (see also Raghupathi, 2007) observed that

governance structures (e.g., steering committee) and relational mechanisms (e.g., cross-

training) were easier to implement than governance processes (e.g., portfolio

management).

What IT decisions to make. Simonsson and colleagues studied the relationship

between IT functions' internal efficiency and external effectiveness as perceived by

serviced business functions (Simonsson, Johnson, & Ekstedt, 2010). In specific terms, the

researchers examined the influence of IT governance maturity on IT governance

performance. The measurement instrument used for this study included a selection of

SAMM's maturity dimensions and Weill and Ross's (2004) performance criteria.

Following the analysis of data gathered from 35 IT executives in as many organizations

and 158 follow-up interviews, Simonsson et al. (2010) found that governance maturity

had a significant influence on governance performance. In particular, the researchers

found significant positive correlations between business stakeholders' perception of

governance performance and three governance activities. They were (a) clearly defined

organizational structures and relationships (e.g., roles and responsibilities), (b) mature

quality management (e.g., process documentation and monitoring), and (c) cost-effective

use of IT (for related studies see Kalumbilo & Finkelstein, 2014; Smallwood, 2014).

However, Simonsson et al. (2010) found no significant correlation between maturity and

performance for certain governance processes, such as project management and capacity

management. In other words, business stakeholders had a better appreciation for their IT functions when governance mechanisms such as roles and responsibilities, process documentation, and monitoring practices were well-defined and functional.

Wu et al. (2015) examined the role played by strategic alignment (SA) in the relationship between IT governance (ITG) and organizational performance (PERF). The researchers set out to accept (or reject) previous beliefs that "intellectual strategic alignment mediates the positive impact of IT governance mechanisms on organizational performance" (p. 505). Their study's data derived from 136 matched-pair surveys of IT and business executives across a range of large Taiwanese organizations. The researchers used SEM techniques to examine two sets of paths between the study's three constructs: ITG➔PERF and ITG➔SA➔PERF. Wu et al. (2015) found that the path from governance to performance (i.e., ITG➔PERF) was insignificant, but the path involving all three constructs (i.e., ITG➔SA➔PERF) was significant. To this end, Wu and his colleagues argued that IT governance mechanisms do not directly influence organizational performance; rather, strategic alignment mediated the positive influence relationship, unlike the results obtained from previous studies (cf. Simonsson et al., 2010). The limitations of the study by Wu et al. (2015) include the use of nonprobability convenience sampling and restriction to one geographic region.

Accountability for IT decision making. The upper-echelon theory posits that strategic choices, which determine the success or failure of an organization, are a reflection of leaders' values and cognitive bases (Awa, Eze, Urieto, & Inyang, 2011; Chuang, Nakatani, & Zhou, 2009; Hambrick & Mason, 1984). A decade ago, researchers

found that "the best predictor of IT governance performance is the percentage of managers in leadership positions who can accurately describe IT governance" (Weill & Ross, 2004, p. 17). Furthermore, they observed that whereas 45% or more managers in top performing organizations accurately described IT governance, the average across more than 250 organizations in over 20 countries was only 38%. In other words, more senior management involvement resulted in more effective IT governance.

Schlosser, Beimborn, Weitzel, and Wagner (2015) drew on social capital theory and adopted a social view to understanding how IT governance mechanisms shaped alignment and performance in 132 large banks in the United States. The researchers found that top management support and IT representation on the executive board had significant influences on IT governance. Elsewhere, Kuruzovich, Bassellier, and Sambamurthy (2012) found that boards of directors were ultimately responsible for all organizational governance activities, but the board typically delegated accountability to either the CEO, CIO, or a group of senior executives. Against these backdrops, researchers (including Weill & Ross, 2004) argued that accountability for IT governance decisions must rest on the shoulders of a leader or group of leaders who have an organization-wide view. That is, such views must transcend beyond IT, and the responsible party must have credibility with all business leaders (see also Konieczny, 2010).

Organizational Leadership

Researchers (e.g., Park, Chinta, Lee, Turner, & Kilbourne, 2011) argued that the most important objective of organizational leadership is the effective management of both micro-level and macro-level concerns. For White, Currie, and Lockett (2016),

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leadership at the micro-level focused on internal well-being issues such as employees'

welfare, relationships, and effective resource utilization. For Cangemi, Davis, and Lott

(2011), leadership at the macro-level centered on external well-being concerns such as

the continued relevance of an organization in the marketplace. Dinh et al. (2014) summed

up these concepts and argued that leaders structure and combine others' inputs to produce

organizational outputs.

Metcalf and Benn (2013) remarked that as strategic decision makers, leaders face

varying challenges emanating from within and outside an organization. Chun and

Mooney (2009) believed that under challenging circumstances, leaders draw inspirations

from sources that are reminiscent of their ontological, epistemological, and axiological

viewpoints (Crotty, 2012). In particular, their personal beliefs, values, cognitive insights

on future events, available alternatives, and the strengths and weaknesses of those

alternatives shape leaders' actions.

Indeed, the modern leadership literature emphasized the influence of decision-

making on achieving both short-term (tactical) and long-term (strategic) organizational

outcomes. For example, Serfontein and Hough (2011) found that unlike traditional

leaders who practiced *tactical* and *direct* forms of leadership, strategic leaders achieved

superior success levels because they were seasoned professionals who had more

experience than their traditional counterparts. Moreover, researchers such as

Skarzauskiene (2010) observed that as leaders transitioned from traditional to strategic

roles, they changed from being systematic thinkers who had a narrow focus to becoming

systemic thinkers who had a holistic view of their organization.

Modern leadership approaches. Signs of the dominant forms of leadership approaches practiced in modern organizations surfaced more than five decades ago (Day, Fleenor, Atwater, Sturm, & McKee, 2014; Sanders & Davey, 2011). In particular, some leadership theorists argued for the recognition of these four dominant approaches: trait, skill, behavioral, and situational.

Trait approach. Researchers such as Colbert, Judge, Choi, and Wang (2012) who focused on a trait-based approach to leadership attempted to understand those individual characteristics that made certain people great leaders. Early theorists (e.g., Downton, 1973; Stogdill, 1974, as cited in Northouse, 2015) attributed the bond between leaders and followers to higher sources of authority. These theorists believe that leadership qualities such as intelligence, self-confidence, persistence, sociability, and integrity were innate in few humans (Furnham & Crump, 2015).

Among modern leadership theorists, a consensus has emerged that leadership traits are either innate, learned, or both (Antonakis, Day, & Schyns, 2012); furthermore, these researchers argued that leaders succeed when their traits are relevant in a leadership situation. For example, Zaccaro (2007, 2012) found that effective leaders possessed much more than innate traits—they combined traits and other attributes. In a related study on the process view of personality traits, Dinh and Lord (2012) found that leaders' traits influenced the outcome of functional-level events such as leader-team activities. In other words, the significant contribution of the trait approach to leadership centered on researchers' submissions that certain personality characteristics do indeed influence people's ability to lead (Colbert et al., 2012; Ensaria, Riggio, Christian, & Carslaw,

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2011). However, some critics have argued that although leadership involves three things (leader, follower, and situation), the traits approach focused only on one—the leader.

Skill approach. Skill-based approach researchers focused on learned and developed skills and abilities that effective leaders possessed. These researchers (including Mumford, Todd, Higgs, & McIntosh, 2017) argued that the knowledge and abilities leaders require can be developed over time through education and experience. Other theorists such as Yammarino (2000) found that effective leaders possessed much more than relevant traits—they had relevant skills that helped them solve complex organizational problems.

In their study, Mumford, Campion, and Morgeson (2007) concluded that leaders who possessed superior combinations of technical skills (work proficiency), human skills (relationship building), and conceptual skills (explore ideas) got along with others. Furthermore, they commanded the respect of their colleagues, and understood their organizations' needs; therefore, they were more effective. Solansky's (2010) 360-degree assessment of leadership skills and mentorship found that mentees coached by mentors who had superior leadership skills achieved greater success after leadership development. Marta, Leritz, and Mumford (2005) found that individuals' planning and social skills had a significant influence on leader emergence; however, the researchers cautioned that contextual factors could have mediated observed results.

As evidenced in studies by Ensaria et al. (2011) and Marta et al. (2005), pioneers of trait-based and skills-based theories focused on leaders alone. In contrast, modern theorists such Northouse (2015) argued that two style-based leadership approaches (behavioral and situational) transcend beyond the realm of leader-centered perspective on

leadership into a realm focused on the three essential components of leadership: leader, follower, and situation.

  Behavioral approach. Anchored on social intelligence principles, behavioral theories of leadership focus on people's ability to understand their own and others' personal feelings, behaviors, and thoughts, and to act accordingly (Boyatzis, 2011). Researchers found that this approach to leadership involves two kinds of behaviors (a) task behaviors, which focus on goal achievement and (b) relationship behaviors, which enable the social context for leader-follower interaction (Silvia & McGuire, 2010). Behavioral theorists (e.g., Derue, Nahrgang, Wellman, & Humphrey, 2011) believe that leaders achieve organizational goals by combining these two behavior types and that the degree to which a leader exhibits both behaviors could influence leadership outcomes.

  Derue et al. (2011) found that a leader's behavior had a significant direct influence on leadership effectiveness, and it also moderated the relationship between traits and each of three dimensions of leadership effectiveness: content, the level of analysis, and target of evaluation. Westaby, Probst, and Lee (2010) examined executives' decisions on youth workforce employment preferences using behavioral reasoning theory, which posits that outcomes from decision-making and behavior depend on context-reasoning (see also Claudy, Peterson, & O'Driscoll, 2013). Westaby et al. (2010) found that both behavioral reasoning and the planned behavior of executives significantly influenced executives' hiring decisions. In summary, findings from these studies showed that behavioral approach to leadership reminds leaders that their relationships with followers occur at both task and relationship levels; therefore, depending on the context, leaders can either adopt a more task-oriented or relationship-oriented focus.

Situational approach. Developed in the late 1960s, the situational approach to leadership posited that "different situations demand different kinds of leadership" (Northouse, 2015, p.131). Blanchard, a pioneer of this theory, argued that there are two dimensions of leadership: supportive dimension and directive dimension (Blanchard, 2010); the former relates to relationship-oriented behavior, and the latter relates to task-oriented behavior. Furthermore, he argued that leaders must combine varying degrees of these two dimensions in different situations.

Similarly, modern situational theorists (including Humphreys, Zhao, Ingram, Gladstone, & Basham, 2010; Thompson & Glaso, 2015) observed that four leadership styles are possible when leaders combine the two dimensions. First, a directing leadership style where leaders focus on directing followers with little support, and second, a coaching leadership style where leaders focus on supporting as well as directing followers. For the third leadership style (supporting leadership), leaders emphasize their support for followers with little direction, while for the fourth leadership style (delegating leadership), leaders focus on providing little support and direction to followers. In short, situational leadership posits that the most effective leadership approaches are contingent upon context and followers' competence and commitment. Critics of situational leadership argued that style could not account for the influence of demographic characteristics (e.g., gender, age, and experience) on leader-follower relationships (Chong & Wolf, 2010). Examples of situational and behavioral theories of leadership include the contingency model of leadership (Fiedler, 1996) and constituents of the full range model of leadership, such as transactional and transformational leadership styles (Bass & Riggio, 2006).

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Full range leadership model. Bass and Avolio developed the full range leadership (FRL) model in 1991 in their quest to have a leadership model that represented pertinent qualities that leaders could use in their relationships with followers (Antonakis et al., 2003; Avolio, 2007). Unlike other leadership models, it combined the most salient concepts from multiple leadership theories, including charismatic leadership (Conger, 1999), path-goal theory (House, 1996), and transactional and transformational theories (Bass, 1985). The FRL model assumes that leaders can exhibit qualities from multiple leadership styles simultaneously (Green, 2014). Researchers observed that because FRL theory combined ideas from multiple leadership concepts, it also inherited the assumptions and theoretical perspectives from source theories. For example, FRL assumes that self-interests drives transactional leader-member relationships and members' interests drive transformational leader-member relationships. In this example, both assumptions of FRL were inherited from their respective source theories (see Bass & Steidlmeier, 1999).

Antonakis et al. (2003) and others recounted that the FRL model was revised multiple times during the first two decades that ensued after its first introduction (see also Hinkin & Schriesheim, 2008; Schriesheim, Wu, & Scandura, 2009). The latest revision, completed in 2009, is comprised of three leadership styles: *transformational*, *transactional*, and *passive-avoidant behavior* leadership and nine factors (Table 1). The corresponding *Multifactor Leadership Questionnaire* (MLQ) for the latest FRL model, which is the best-known and most validated measurement instrument researchers used to assess leaders' styles, has thirty-six indicators in total; that is, each of the nine leadership style factors is determined using four indicators (Antonakis & House, 2014).

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Table 1. *Nine-Factor FRL Model with Three Leadership Styles*

Leadership Style	Factors	MLQ Indicators
Transformational Leadership	Idealized Influence - Attributed	4
	Idealized Influence - Behavioral	4
	Inspirational Motivation	4
	Intellectual Stimulation	4
	Individual Consideration	4
Transactional Leadership	Contingent Reward	4
	Management-by-Exception: Active	4
Passive-Avoidant Behavior	Laissez-Faire	4
	Management-by-Exception: Passive	4

Critics of FRL, such as Avolio (2007) and Yukl (1999), argued that it failed to delineate between authentic and non-authentic leadership styles. Other critics (e.g., Dulewicz & Higgs, 2005; Metcalf & Benn, 2013) cautioned that transformational leaders with selfish intentions could take followers' loyalty for granted. In counter-arguments, proponents of the FRL model remarked that non-authentic or self-centered leaders are neither transactional nor transformational, and hence, they do not deserve recognition in the FRL model (see Bass & Steidlmeier, 1999). Furthermore, proponents have argued that the FRL model is better suited for modern leadership studies and practices because leaders' outcomes depend on their ability to apply a unique style to a different context (Antonakis et al., 2003).

Transactional and transformational leadership. According to Hickman (2010), at the end of Burns's leadership study of 1978, the researcher refuted previous claims that

(a) leadership and followership are unrelated concepts, and (b) leaders are superior to followers. Burns argued for equal treatment of both elected officials (leaders) and their electorates (followers); furthermore, he developed a leadership model that conceived both leadership and followership as equal and related concepts. Burns's revolutionary model identified two types of leadership: *transactional* and *transforming* (Hickman, 2010; Paraschiv, 2013). It conceptualized transactional leadership as an exchange process between leaders and followers (Groves & LaRocca, 2011). For example, an elected official could exchange his or her electorates' votes for new infrastructure projects in that community. In comparison to transactional leaders, transforming leaders, according to Burns, identify potential deficiencies followers have and work collaboratively with such followers to resolve those concerns (Quintana et al., 2015). Indeed, scholars credited Burns's work for beginning a new era of leadership, which emphasized morality and mutual respect (Van Genderen, 2012).

Bass (1985) set the stage for the introduction of Burns's leadership model into organizational settings. The researcher later coined two phrases—*transactional leadership style* and *transformational leadership style*—that he used to refer to Burns's transactional leadership and transforming leadership, respectively (Green, 2014). After that, Bass (1985) identified and operationalized factors that assessed those leadership styles: the latest revision of the operational model has nine factors (Table 1). The first five factors assess transformational leadership: (a) *Idealized Influence – Attributed*, (b) *Idealized Influence - Behavioral*, (c) *Inspirational Motivation*, (d) *Intellectual Stimulation*, and (e) *Individual Consideration*. The next two factors assess transactional leadership: (f) *Contingent Reward* and (g) *Management-by-Exception: Active*, while the

last two factors assess passive-avoidant behaviors: (h) *Laissez-Faire* and (i)

Management-by-Exception: Passive. Passive-avoidant behaviors represent the absence of

leadership, which is not relevant to this study (Laglera, Collado, & De Oca, 2013); hence,

in this study, the researcher deliberately excluded literature on passive-avoidant behavior

factors.

     Idealized influence – attributed (II-A). Leaders who rate highly on this factor are

admired, respected, and trusted by other members (e.g., followers and colleagues) due to

the perceived qualities attributed to such leaders (Green, 2014). An indicator of this

measure in the MLQ is whether the leader "acts in ways that build my respect" (Avolio &

Bass, 2004, p. 117).

     Idealized influence – behavioral (II-B). Exemplified by a leader's actual

behaviors, leaders who achieve superior proficiencies on this factor prioritize followers'

need ahead of theirs, and they emphasize the importance of teamwork and of having a

collective sense of vision (Hickman, 2010). For example, one indicator of this measure in

the MLQ is whether the leader "emphasizes the importance of having a collective sense

of mission" (Avolio & Bass, 2004, p. 117).

     Inspirational motivation (IM). Here, leaders demonstrate a commitment to goals

by (a) behaving in ways that inspire people around them and (b) motivating followers and

encouraging their participation. In doing so, such leaders improve trust, respect, and

confidence among team members (Gandolfi, 2012). An indicator of this measure is

whether the leader "expresses confidence that goals will be achieved" (Avolio & Bass,

2004, p. 117).

Intellectual stimulation (IST). Leaders encourage followers to challenge the norm and to contribute in ways that advance teams' common interests; the leader's objective here is to improve followers' creativity and increase followers' confidence (Green, 2014). One indicator of this measure is whether the leader "seeks differing perspectives when solving problems" (Avolio & Bass, 2004, p. 116).

Individualized consideration (IC). Leaders tailor their style to target followers' needs, and they establish personal relationships with followers. Furthermore, such leaders serve as coaches and mentors of followers and focus on developing followers' potentials to higher levels (Hickman, 2010). An example of an indicator of this measure in the MLQ states that the leader "spends time teaching and coaching" (Avolio & Bass, 2004, p. 116).

Contingent reward (CR). Here, the leader and follower first agree on assignments that the follower must perform; then, they agree on rewards (e.g., promotion, pay increase, etc.) that the leader could exchange with the follower upon satisfactory completion of assignments (Podsakoff et al., 2010). An indicator of this measure is whether the leader "makes clear what one can expect to receive when performance goals are achieved" (Avolio & Bass, 2004, p. 117).

Management-by-exception: active (MBE-A). MBE-A represents a reactive transactional behavior where a leader actively monitors a follower's deviations from expectations (e.g., failure to adhere to guidelines or standards, mistakes in assigned tasks) and takes corrective actions when necessary (Hickman, 2010). An indicator of this measure in the MLQ is whether the leader "keeps track of all mistakes" (Avolio & Bass, 2004, p. 117).

In their MLQ validation study, Antonakis et al. (2003) found that contingent reward had two dimensions; first, it can be transactional, for example, when a leader exchanges material reward with his or her followers, and second, it can be transformational, for example, when the reward is psychological. Walumbwa, Wu, and Orwa (2008) found contingent reward to be effective in follower motivation; however, they also found that it was less effective in follower motivation than all five transformational leadership factors.

Hetland et al. (2011) examined the effects of transformational and transactional leadership on followers' three psychological needs (autonomy, relatedness, and competence) at the workplace. The researchers found that transformational leadership had a significant positive influence on followers' psychological needs. Also, they found that transactional leadership, especially MBE-A, posed unique threats to followers' psychological needs due to followers' perceived insecurity and lack of social support with that type of leadership. In contrast, Hickman (2010) remarked that leaders who practice MBE-A leadership serve useful purposes in certain situations, such as when an assignment has elevated safety risks. Moreover, findings from other studies (e.g., Ryan & Tipu, 2013) showed that MBE-A had a greater positive effect on followers' outcomes than the two passive-avoidant behavior factors.

Elsewhere, in recent studies, researchers also found that both transformational and transactional leadership influenced organizational outcomes. For example, Garcia-Morales, Jimenez-Barrionuevo, and Gutierrez-Gutierrez (2012) found that transformational leadership had a significant positive influence on organizational performance when combined with other factors, such as organizational learning and

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innovation. Epitropaki and Martin (2013) found that both transformational and transactional leadership significantly influenced employees' ability to gain their supervisors support; however, the researchers cautioned that the quality of leader-member exchange relationship moderated the influence relationship. Hur, Van den Berg, and Wilderom (2011) found that transformational leadership mediated the significant influence emotional intelligence had on both leader and team effectiveness. Bono, Hooper, and Yoon (2012) found that both rater-demographics (e.g., age, gender) and rater-personality had significant effects on followers' perception of their leaders' transactional and transformation leadership styles.

Like others before him, Gandolfi (2012) concluded that transformational leadership had a significant influence on organizational outcome across multiple cultures. Furthermore, Westerlaken and Woods (2013) found that leaders' psychopathy traits had a significant negative influence on FRL model constructs. In particular, leaders who self-identified as lacking empathy, having poor behavioral control, and callous disregard showed little transactional and transformational leadership behaviors. Young (2011) examined whether female leaders who practiced either transactional or transformational leadership style had superior societal norms about female behaviors (e.g., self-sacrifice, physical attractiveness). The researcher found weak relationships between female leaders' styles and their internalized behaviors. However, the study's findings showed mixed results when Young accounted for the moderating effects of certain factors, such as gender composition and organization size. For example, on one occasion, Young (2011) found a strong positive relationship between individualized consideration and self-sacrifice for predominantly female organizations.

Leading the IT practice. Among scholars (e.g., Guillemette & Pare, 2012) and practitioners (e.g., Kohli & Johnson, 2011), a consensus emerged that the primary objective of a CIO is to maximize returns from IT investments through the effective utilization of available resources. For example, Kohli and Johnson (2011) found that senior executives of one organization, which was in desperate need of strategic change, turned to a new CIO with the right skills and leadership experience to pursue their vision for a new IT and business collaboration. In their study, Guillemette and Pare (2012) focused on making "CIOs rise to the challenges of meeting top managers' expectations about IT" (p. 530). In the end, the researchers concluded that the more an IT function conformed to one or more of five profiles, the better the contributions associated with such profiles. The five profiles were (a) partnership, (b) systems provider, (c) architecture builder, (d) technological leader, and (e) project coordinator.

Also, Guillemette and Pare observed that in conformant organizations, senior executives believed the CIO was successful. Hirschheim et al. (2003) achieved similar findings in their study in which the researchers used the perception gap theory to examine how senior executives formed perceptions about CIO effectiveness. Karahanna and Preston (2013) examined how social capital influenced the relationship between CIO and other members of an organization's TMT in the creation of organizational value. The researchers used CIO-TMT matched-pair responses from several hospitals in the United States and found that CIO-TMT social capital only had a significant influence on organizational performance when strategic alignment mediated such relationships (see also Benlian & Haffke, 2016).

Evolution of the CIO role. Several researchers focused on understanding how the CIO role has evolved over the past two decades. For example, Carter et al. (2011) found that earlier on, CIOs focused on maintaining stability, reliability, and control, and those CIOs relied on cost-cutting organizational strategies. Also, they remarked that in recent times, CIOs had turned their attention towards contributing to organizational growth, adaptability, and innovation (see also Chun & Mooney, 2009). Moreover, Hu, Yayla, and Lei (2014) concluded that "inclusion of CIO in TMT has a significant positive effect on firm performance, and this positive effect is larger for firms in dynamic environments and during the more recent years" (p. 4,346). In summary, researchers concluded that the strategic role of modern CIOs had earned them their place among TMT.

CIO reporting structure. Researchers found mixed results regarding which member of the senior executive team a CIO should report to. Some early scholars (e.g., Watson, 1990) found that more influential and more powerful CIOs report directly to the most senior executive (chief executive officer, CEO), whereas less influential and less powerful CIOs report to an executive who is one or more levels below the CEO. Banker et al. (2011) refuted earlier claims on the power-centric reporting structure and argued that effective organizations must adopt a CIO reporting structure that is reflective of the CIO's role and the organization's strategic posture. In particular, Banker and colleagues proposed that CIOs who focus on growth, adaptability, and innovation should report to the CEO while CIOs who focus on stability, reliability, and control should report to the most senior executive in charge of financial assets (chief financial officer, CFO).

IT leadership style and employee performance. Bennett (2009) provided a segue into the investigation of IT leadership styles by examining IT employees' perception of

their immediate supervisors' leadership styles. The researcher investigated relationships between each of the three FRL model's leadership styles of IT managers (transformational, transactional, and passive-avoidant) and their employees' performance. After analyzing data obtained from employees, Bennett (2009) concluded that IT employees preferred transformational IT managers to either transactional or passive-avoidant IT managers. For similar results, see also Kelloway, Turner, Barling, and Loughlin (2012). The limitations of Bennett's (2009) study include the use of single-individual response for the assessment of both leaders' effectiveness and followers' perception, which might have introduced common method bias (Siemsen et al., 2010), as well as the use of nonprobability convenience sampling for data collection that could pose a threat to external validity of studies.

CIO's leadership style and strategic alignment. Shao et al. (2012) investigated how organizations could maximize contributions from IS investments by exploiting the influence of their CIO's leadership style on strategic alignment. In their exploratory study, the researchers used the contingency model of leadership as the basis for predicting potential relationships between CIO leadership style, strategic alignment, and business strategy (Figure 8).

Shao and colleagues made three predictions; first, they argued that a CIO who adopts a transformational leadership style is suited to an organization where leaders follow a prospector business strategy. Second, a CIO who adopts a transactional leadership style is suited to an organization where leaders prefer a defender business strategy. Last, a CIO who adopts a mixed leadership style (i.e., one who combines both transformational and transactional leadership styles) is suited to an organization where

leaders follow an analyzer business strategy. In their recommendations for further

studies, Shao et al. (2012) encouraged other researchers to validate their theoretical
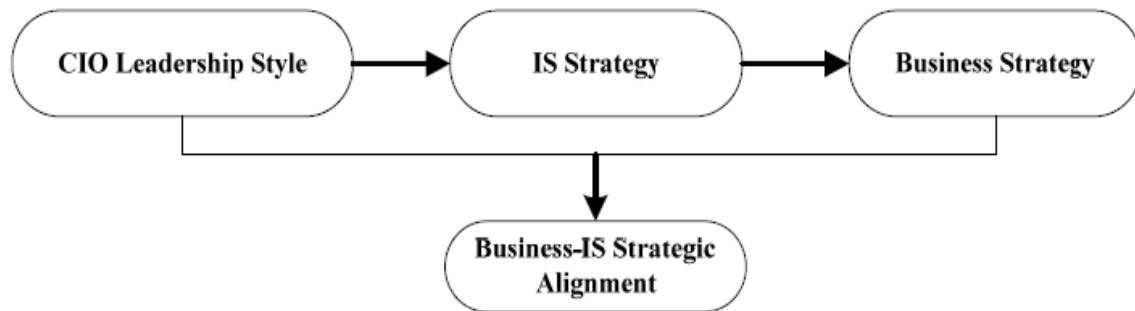
model and the three propositions.

Figure 8. Shao et al.'s CIO leadership style and strategic alignment fit model. From "The fit between IS leadership style and business strategy to achieve business-IS strategic alignment" by Z. Shao, Y. Feng, & L. Liu, 2012, *Journal of Convergence Information Technology*, *7*, p. 116. Copyright 2012 by the Advanced Institute of Convergence Information Technology Research Center. Adapted with permission.

Findings

Appendix A shows a summary of the key characteristics, findings, and

recommendations of the most influencing studies found in the literature that provided the

scholarly foundation for this research. The literature revealed that there was a consensus

among early and modern strategic management researchers who believed that effective

organizations strike a balance between strategy, technology, structure, and process

(Carter et al., 2011; Chan et al., 2006; Miles et al., 1978). Also, effective organizations

combine those dependencies in ways that form an integrated whole to enable dynamic

and sustained interaction with their environments. In so doing, each organization adopts

one of three unique behavioral patterns: defender, prospector, or analyzer (Miles et al.,

1978). Moreover, the existing literature shows that every industry has a mix of

organizations that follow defender, prospector, and analyzer business strategies. In

particular, several scholars and practitioners argued that an industry thrives when organizations that follow the three types of business strategies are simultaneously present (Gnjidic, 2014; Mantere, 2013; Miles & Snow, 1986). In other words, for the industry to advance, prospectors must ensure that the industry continues to evolve through innovation and research and development. Analyzers must ensure the effective replication of new products and services introduced by prospectors, and also, they must ensure that those products and services reach the wider consumer audience at a fair market price. Defenders must institute operational excellence measures that lead to improved product quality, cost reduction, and overall stability and control of the industry.

Scholars remarked that "alignment is not desirable as an end in itself" (Chan & Reich, 2007b, p. 298); instead, "alignment should be understood as both an end state and a process" (Baker et al., 2011, p. 309). To understand the antecedents of alignment, researchers adopted the end-state perspective of alignment. They argued that the end-state perspective encourages the use of variance models for studying factors that enable (or inhibit) alignment, and it avails researchers the opportunity to assess each organization's state of alignment at a given point in time. In contrast, the process perspective on alignment posits that both business strategy and IS strategy formulation and execution must be integrated to mature and optimize alignment benefits (Luftman et al., 2015). That is, although most researchers viewed strategic alignment as a dynamic and evolutionary concept, the end-state perspective provided an opportunity for them to assess strategic alignment antecedents using static measures (Baker et al., 2011). Nonetheless, researchers acknowledged weaknesses with both approaches; they cautioned that whereas use of the end-state perspective alone cannot explain how organizations sustain alignment

over time, use of the process perspective alone cannot provide an accurate indication of the current state of an organization's alignment.

In some studies, researchers assumed that strategic alignment outcomes were contingent on other factors such as an organization's strategic orientation, alignment type, industry type, organization size, governance structure, and social and cultural factors (Gerow et al., 2014; Sabherwal & Chan, 2001; Wu et al., 2015). Against this backdrop, to optimize IS investments, an organization must focus on activities that have a greater potential for improving its state of alignment. Moreover, most alignment scholars adopted concepts from strategic management and contingency theories. As a result, some academics and professionals have argued that some of those concepts do not adequately explain the mechanisms and processes by which alignment fosters competitive advantage (Baker et al., 2011; Cui et al., 2015).

Among scholars, there was a significant and growing body of evidence that claimed transformational leadership was more effective than other leadership forms in the FRL model (Bennett, 2009; Hickman, 2010). In particular, these scholars observed that transformational leadership results in greater follower commitment, loyalty, and satisfaction. Researchers also observed that the FRL model avails leaders the opportunity to adopt each of its diverse leadership styles to some degree (Phelps, 2014). As a result, several scholars (including Podsakoff et al., 2010) proposed an augmentation relationship between transformational and transactional leadership styles; in this arrangement, these scholars observed that transformational leadership does indeed augment transactional leadership in predicting follower's satisfaction and performance. In other words, they argued that transformational leadership has a higher significant positive influence on

follower effectiveness when combined with transactional leadership. For example, Elenkov (2002) remarked that certain types of transformational leadership behaviors, such as inspirational motivation combined with contingent rewards (e.g., promotion, pay increase), result in improved followers' performance and job satisfaction.

In the last decade, organizations have witnessed an increase in the use of virtual communication mediums for managing collaboration between distributed teams (Day et al., 2014; Dinh et al., 2014). In response to this need, researchers placed demands on traditional leadership forms, which have consequently led to new leadership trends. Notable examples include e-leadership (Li, Liu, Belitski, Ghobadian, & O'Regan, 2016; Phelps, 2014) and pluralized leadership (Contractor, DeChurch, Carson, Carter, & Keegan, 2012; White et al., 2016). Further, some scholars have argued that while none of the current leadership forms are adequately suited for the new era of leadership, researchers could use features from the FRL model combined with other leadership approaches (e.g., traits, skills) to study the new leadership trends (Antonakis & House, 2014; Epitropaki & Martin, 2013).

Moreover, the literature revealed the emergence of a new stream of research in which researchers focused on IT leaders' effectiveness and its influence on organizational outcomes. In most of these studies, the researchers adopted principles from social capital theory, upper echelon theory, the RBV of a firm, and contingency theory (Karahanna & Preston, 2013; Wagner, Beimborn, & Weitzel, 2014). In particular, only a few of the researchers in this category examined IT leaders' characteristics and their influence on organizational factors, such as performance, partnerships, and employee effectiveness. To this end, Shao et al. (2012) and Chae et al. (2014) remarked that despite the significant

level of progress leadership scholars have made, the field of IT would benefit from more inquiries into how IT leaders' characteristics affect organizational outcomes.

Critique of Previous Research Methods

In the literature, researchers adopted different approaches for their studies. There were more nonexperimental quantitative studies than qualitative and mixed-methods studies. Most researchers used established measurement scales and theories that scholars had validated previously. As a result, more researchers focused on theory testing in comparison to those who focused on theory formulation. Conventional techniques the researchers deployed to strengthen their research findings include the use of verified methods, validated models (e.g., FRL model, SAM), and validated instruments (e.g., MLQ, STROBE; Antonakis et al., 2003; Belfo & Sousa, 2013). The next sections present further insights into the methodological strengths and limitations found in the literature, as well as conflicts among different theoretical viewpoints that researchers used for strategic management studies.

Methodological Strengths and Limitations

For data collection, most researchers used either single-individual responses (e.g., Bono et al., 2012) or matched-pair responses (e.g., Karahanna & Preston, 2013). Whereas strategic management researchers preferred matched-pair responses to single-individual responses, they admitted that matched-pair surveys usually reported low response rates and higher nonresponse bias compared to single-individual responses. Nonetheless, researchers also cautioned that use of single-individual responses could introduce common methods bias (Siemsen et al., 2010). There were also a few researchers, such as Gerow et al. (2014), who relied on data from a meta-analysis. For such cases, researchers

cautioned against issues with publication bias, which is common to meta-analysis and could threaten the validity of such studies (Kepes et al., 2012).

Sampling approach. Few researchers used nonprobability sampling strategies (e.g., Bennett, 2009). For such studies, researchers cautioned that this sampling method could threaten external validity of their findings. In contrast, other researchers used random probability sampling methods, which have a superior external validity (Sekaran & Bougie, 2013). However, some researchers reported concerns with external validity due to (a) small samples, (b) focus on specific geographic regions, and (c) focus on specific industry types. For example, Carter et al. (2011) based their study's findings on a sample of only 45 CIOs, while Nfuka and Rusu (2011) focused their study on a small geographic region.

Longitudinal versus cross-sectional designs. Most researchers used a cross-sectional design approach (e.g., Wu et al., 2015), but only a few among them made extra efforts to mitigate known limitations with cross-sectional designs. For example, to improve the validity of their cross-sectional study, Wu et al. (2015) conducted additional reliability and symmetric metrics tests. However, some scholars believe that findings from studies involving longitudinal designs had superior validity compared to results from studies involving cross-sectional designs (Field, 2013).

Statistical approaches. There were two dominant statistical methods observed in the literature. The first group of researchers used linear regression or correlational statistical techniques to examine the influence relationships between the study's constructs (e.g., Cataldo et al., 2012; Johnson & Lederer, 2010). The second group of researchers used SEM, and consequently, they examined their study's constructs using

linear regression and factor analytic techniques (e.g., Luftman et al., 2015; Williams, Vandenberg, & Edwards, 2009).

Other issues related to research quality. Response rates varied across studies and fluctuated between 5% (Bennett, 2009) and 71% (Wu et al., 2015). In particular, researchers that sampled TMTs had lower response rates compared to those that tested other groups. As Clottey and Benton (2013) found, a low response rate could lead to nonresponse bias. Gerow et al. (2016) based their meta-analytic study on 71 alignment research studies completed in the last thirty years. The researchers found that the sample sizes for the studies ranged from 1 to 1072. During the present study, the researcher examined the sample breakdown from Gerow et al. (2016) and found that the sample sizes deferred considerably across the different studies ($N = 71$, $M = 166$, $SD = 147$). Also, the mean sample size of 166, which the researcher calculated for Gerow et al. (2016), was close to the sample size of 145 that he used for the present study.

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Conflicts in Theoretical Viewpoints

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RBV theorists (e.g., Bacha, 2012) assumed a realist ontology because these researchers believed that all organizations possessed the ability to gain a competitive advantage. However, they argued that some companies achieve superior outcomes because their leaders were more effective at exploiting the potentials embedded within critical resources (Barney, 1991; see also Crotty, 2012). In contrast, FRL theorists assumed a relativist ontology because they believed that meaning was formed or interpreted but not given (Green, 2014; see also Kuhn & Hacking, 2012). In other words, these theorists posited that leaders freely apply certain leadership qualities drawn from multiple behavioral patterns to a given situation.

Furthermore, some critics have argued that competence-based models such as RBV do not reliably predict outcomes from future investments in organizational resources (Krotov, 2015; Pan et al., 2015). They also admitted that RBV did not offer needed flexibility; hence, it was less suited for studies where individuals examined companies that operate in dynamic environments because such firms must respond quickly to change (Hinterhuber, 2013). Researchers minimized the limitations of RBV in their studies by combining its principles with those from a capability-based framework such as the Dynamic Capability Framework (DCF; Teece, Pisano, & Shuen, 1997). DCF represents "a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environment" (Gerow et al., 2015, p. 469; see also Baker et al., 2011). In other words, by combining principles from competence-based and capability-based models, research can enhance findings from strategic management studies.

Enhanced Theoretical Framework

The researcher found from the literature that other variables, which remain unidentified in this study's conceptual models, as described earlier (see Figure 1 and Figure 3), could influence predicted relationships. In particular, during the literature review, he identified variables such as organization size, industry type, age, and gender as potential factors that could affect the study's outcome (Aguinis, Edwards, & Bradley, 2016; Bono et al., 2012; Young, 2011). Hence, the researcher enhanced the study's detailed conceptual model to account for the potential effects of the identified moderator variables. Figure 9 shows the enhanced conceptual model for the study, which now includes the identified moderators.
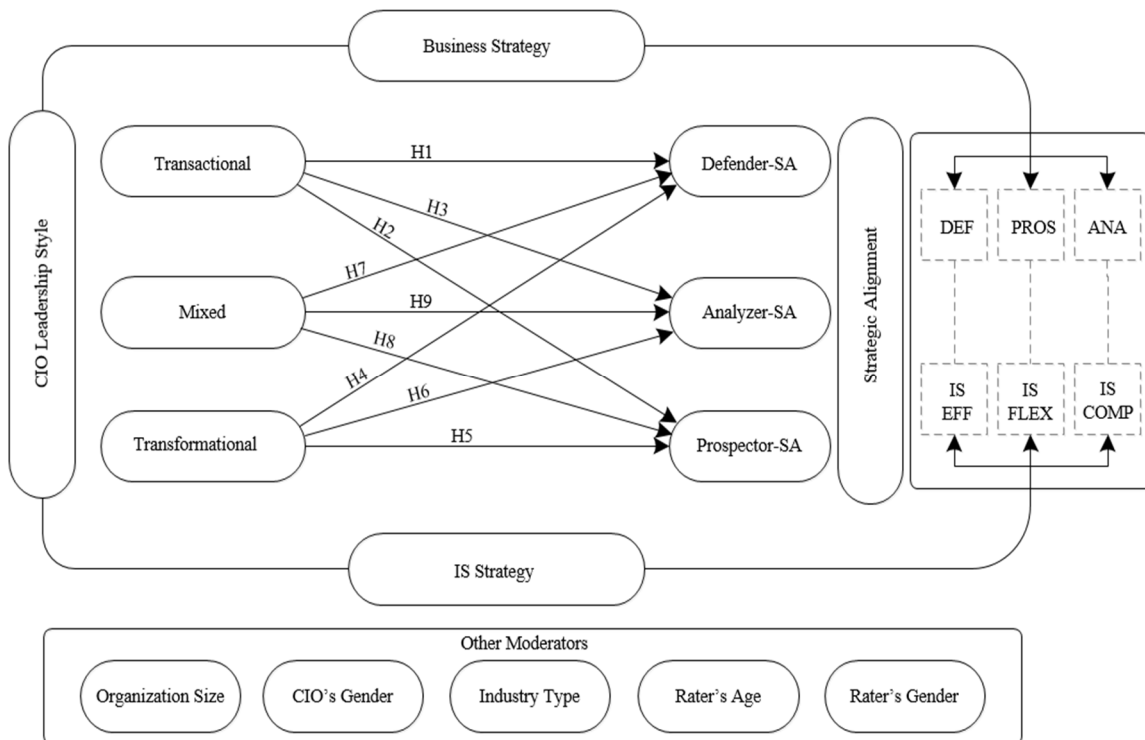
Figure 9. Enhanced conceptual model for the study.

Summary

In Chapter 2, the researcher reviewed the pertinent literature in the fields of strategic management, leadership, and IT. During the review, he revealed advances made in these areas as he attempted to validate the position of the present study within the broader research context. In particular, through the review, the researcher revealed that there might be potential relationships between IT leadership characteristics and organizational outcomes (e.g., Li & Tan, 2013). However, in the nascent field of IT leadership research, which began less than two decades ago, only a few researchers have focused on understanding such relationships. To this end, modern scholars (e.g., Chae et al., 2014; Shao et al., 2012) called for further investigation of the potential relationships between IT leadership and strategic alignment. In short, the researcher's motivation to

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pursue the present study, in which he examined the relationships between CIO's

leadership style, business strategy, and strategic alignment, resulted from the revelations

he made in the literature. Chapter 3 presents a detailed description of the methodology

the researcher used for this study.

CHAPTER 3. METHODOLOGY

During the 1936 United States presidential election, the publishers of *Literary Digest*, a reputable magazine, wrongly predicted that Landon, the Republican presidential candidate, would become the next president of the United States (Gayo-Avello, 2011; Lusinchi, 2012; Squire, 1988). The researchers involved in the *Literary Digest* study based their findings on a sample size of over two million survey participants, yet, with less than 700 participants, other researchers in a similar study conducted during the 2000 presidential election between Bush and Gore accurately predicted the closeness of that race (Vogt, 2007). Simply put, although the first study's findings showed poor external validity, the findings of the second study, in which researchers used fewer than 0.04% of the number of participants, showed superior external validity. Several scholars, including Squire (1988), believed that the inaccuracy of the prediction of the 1936 presidential election's outcome by researchers at *Literary Digest* stemmed from a poor research design, questionable sampling approach, response bias, and other flaws (see also Wang, Rothschild, Goel, & Gelman, 2015).

Accordingly, a focus on methodological details minimized the potential challenges of poor research design in this study and mitigated the risk of bias that would influence the outcomes. Therefore, this chapter describes the methods and procedures in a way that the reader and other researchers may critique the study's methods, and if desired, replicate the research. This chapter contains multiple sections including (a) purpose of the study, (b) research questions and hypotheses, (c) research design, (d)

target population and sample, (e) procedures, (f) instruments, and (g) ethical considerations.

Purpose of the Study

In the first two chapters, the researcher presented evidence indicating there is a reasonable consensus among strategic management theorists that alignment between business strategies and IS strategies increases an organization's ability to actualize its goals (Bharadwaj et al., 2013; Renaud, Walsh, & Kalika, 2016). Also, researchers argued that CIOs' position of authority and other capabilities they possess could influence the contributions from IS towards achieving business outcomes (Banker et al., 2011; Chun & Mooney, 2009; Li & Tan, 2013). However, little evidence in the extant literature showed what (if any) relationships exist between strategic alignment and CIOs' leadership styles related to the achievement of business outcomes (Shao et al., 2012). In fact, until this study, no researcher has empirically examined the three constructs—CIO leadership style, strategic alignment, and strategic business orientation—together.

Therefore, the purpose of this quantitative nonexperimental correlation study was to examine the relationships between three leadership styles (transactional, transformational, and mixed) and business-IS strategic alignment while accounting for the potential moderating effects of three strategic business orientations (defender, prospector, and analyzer). The researcher relied on a survey of 145 individuals with both management and IS/IT experience to investigate such relationships. Furthermore, the researcher conducted statistical analysis to test hypothesized relationships to determine whether certain combinations of CIO leadership style and strategic business orientation resulted in strategic alignment (Chae et al., 2014). This approach may advance extant

theory by validating Shao et al.'s (2012) theoretical model, which holds that CIOs who adopt a transformational leadership style are better suited to prospector business strategy, and CIOs who adopt transactional leadership style are better suited for defender business strategy.

Research Questions and Hypotheses

After being fully consented, each participant completed the survey, which solicited his or her perception of the CIO's leadership style, the business strategy, and the IS strategy. Then, the researcher examined the data to understand whether leadership style influenced strategic alignment. Hence, in this study, the researcher posed one important research question (RQ) accompanied by its null and alternate hypothesis.

RQ: To what extent, if any, does CIO leadership style correlate with strategic alignment when moderated by business strategy?

H0: There is no statistically significant correlation between CIO leadership style and strategic alignment when moderated by business strategy.

HA: There is a statistically significant correlation between CIO leadership style and strategic alignment when moderated by business strategy.

Nine subquestions further clarified the omnibus research question. Table 2 displays the subquestions and their corresponding alternate and null hypotheses.

Table 2. *Subquestions and Hypotheses*

Subquestion (SQ)	Null and Alternate Hypotheses
SQ1: To what extent, if any, does CIO transactional leadership style correlate with strategic alignment when moderated by defender business strategy?	$H1_0$: There is no statistically significant correlation between CIO transactional leadership style and business-IS strategic alignment when moderated by defender business strategy.
	$H1_A$: There is a statistically significant correlation between CIO transactional leadership style and business-IS strategic alignment when moderated by defender business strategy.
SQ2: To what extent, if any, does CIO transactional leadership style correlate with strategic alignment when moderated by prospector business strategy?	$H2_0$: There is no statistically significant correlation between CIO transactional leadership style and business-IS strategic alignment when moderated by prospector business strategy.
	$H2_A$: There is a statistically significant correlation between CIO transactional leadership style and business-IS strategic alignment when moderated by prospector business strategy.
SQ3: To what extent, if any, does CIO transactional leadership style correlate with strategic alignment when moderated by analyzer business strategy?	$H3_0$: There is no statistically significant correlation between CIO transactional leadership style and business-IS strategic alignment when moderated by analyzer business strategy.
	$H3_A$: There is a statistically significant correlation between CIO transactional leadership style and business-IS strategic alignment when moderated by analyzer business strategy.
SQ4: To what extent, if any, does CIO transformational leadership style correlate with strategic alignment when moderated by defender business strategy?	$H4_0$: There is no statistically significant correlation between CIO transformational leadership style and business-IS strategic alignment when moderated by defender business strategy.
	$H4_A$: There is a statistically significant correlation between CIO transformational leadership style and business-IS strategic alignment when moderated by defender business strategy.
SQ5: To what extent, if any, does CIO transformational leadership style correlate with strategic alignment when moderated by prospector business strategy?	$H5_0$: There is no statistically significant correlation between CIO transformational leadership style and business-IS strategic alignment when moderated by prospector business strategy.
	$H5_A$: There is a statistically significant correlation between CIO transformational leadership style and business-IS strategic alignment when moderated by prospector business strategy.
SQ6: To what extent, if any, does CIO transformational leadership style correlate with strategic alignment when moderated by analyzer business strategy?	$H6_0$: There is no statistically significant correlation between CIO transformational leadership style and business-IS strategic alignment when moderated by analyzer business strategy.
	$H6_A$: There is a statistically significant correlation between CIO transformational leadership style and business-IS strategic alignment when moderated by analyzer business strategy.

Table 2. *Subquestions and Hypotheses* (cont.)

Subquestion (SQ)	Null and Alternate Hypotheses
SQ7: To what extent, if any, does CIO mixed leadership style correlate with strategic alignment when moderated by defender business strategy?	$H7_0$: There is no statistically significant correlation between CIO mixed leadership style and business-IS strategic alignment when moderated by defender business strategy.
	$H7_A$: There is a statistically significant correlation between CIO mixed leadership style and business-IS strategic alignment when moderated by defender business strategy.
SQ8: To what extent, if any, does CIO mixed leadership style correlate with strategic alignment when moderated by prospector business strategy?	$H8_0$: There is no statistically significant correlation between CIO mixed leadership style and business-IS strategic alignment when moderated by prospector business strategy.
	$H8_A$: There is a statistically significant correlation between CIO mixed leadership style and business-IS strategic alignment when moderated by prospector business strategy.
SQ9: To what extent, if any, does CIO mixed leadership style correlate with strategic alignment when moderated by analyzer business strategy?	$H9_0$: There is no statistically significant correlation between CIO mixed leadership style and business-IS strategic alignment when moderated by analyzer business strategy.
	$H9_A$: There is a statistically significant correlation between CIO mixed leadership style and business-IS strategic alignment when moderated by analyzer business strategy.

Research Design

This study incorporated a post-positivist worldview that shaped the deterministic and reductionist perspectives (Mingers, Mutch, & Willcocks, 2013). From a deterministic viewpoint, an objective reality lens supported an examination of the effects and outcomes due to causality. From a reductionist perspective, a parsimonious processing of ideas into small and discrete sets of tests focused the discovery of potential relationships between constructs (Crotty, 2012). Furthermore, a quantitative, nonexperimental, cross-sectional

approach supported investigation of the research question and subquestions. Techniques such as descriptive statistics, measures of central tendency, measures of dispersion, and correlation contributed to the examination of hypothesized relationships. As Sekaran and Bougie (2013) noted, correlational studies have the advantage of being nondestructive. In other words, researchers usually perform such studies in participants' natural environments where events proceed with minimal interference.

The researcher used primary data gathered via an online survey that comprised 71 closed-ended questions mostly anchored on Likert scales (Robertson, 2012). The researcher preferred to use an online survey over other data collection approaches due to benefits that include the economy of the design, the rapid turnaround in data collection, a wider participant reach, and a more realistic representation of the population due to the sample. Hence, as findings from studies have shown, ceteris paribus, survey-based studies have a superior external validity compared to most data collection approaches (Creswell, 2014). The study's survey instrument, which is described in detail later in this chapter, had sections with indicators that measured leadership style, business strategy, and IS strategy constructs. Although some researchers regard Likert scale indicators as ordinal-level measures (Jamieson, 2004), in this study, those indicators served as interval-level measurements. Both Li (2013) and Jamieson (2004) asserted the validity of employing Likert scales for interval-level measurement, and several strategic management and leadership studies exhibited similar assumptions (for other examples, see Hiekkanen, Pekkala, & Collin, 2015; Karkoulian, 2015). Moreover, this assumption justified the use of statistical techniques such as correlational analysis and measures of dispersion for data analysis.

The researcher contracted the services of QuestionPro—a reputed web-based survey service provider. QuestionPro was responsible for the participants' recruitment, survey administration, and data collection. Other related studies in which researchers used QuestionPro for similar purposes include Young (2011) and Vreuls and Joia (2011). QuestionPro randomly selected participants and administered the survey to each participant after that individual had consented to partake in the study.

The unit of analysis for this study was the business unit level (Bhattacherjee, 2012). To this end, the researcher aggregated data from respondents that reflected their observed/experiential perception of the CIO's behavioral patterns and their organizations' realized (not planned) strategies at business function levels. Then, the researcher performed subsequent statistical analysis on the aggregated data and used combined measures for business strategy and IS strategy to determine strategic alignment scores.

Operational Definitions

Table 3 shows the operational definitions for the study's constructs. In it, the researcher presented information on each variable's role and some indication of how he assessed that variable. As Table 3 also shows, the researcher determined participants' age using a range of numbers instead of a single integer that could be traceable to an individual. By relying on age range for this study, the researcher aimed to minimize the need to manage personally identifiable information (PII) for the participants. For more information on PII, refer to the Protection of Participants and Ethical Considerations sections later in this chapter.

Table 3. *Operational Definition of the Study's Constructs*

Construct/Variable		Definition
Name	Role	
IS Strategy	Moderator	An organization's realized IS strategy as perceived by respondents and measured using four IS strategy factors from Sabherwal & Chan's (2001) instrument.
Business Strategy	Moderator	An organization's realized business strategy as perceived by respondents and measured using six business strategy factors from Sabherwal and Chan's (2001) instrument.
Strategic Alignment	Dependent	A value computed for alignment between business strategy and IS strategy following recommendations from other scholars (e.g., Baker et al., 2011; Sabherwal & Chan, 2001).
Leadership Style	Independent	A CIO's preferred method of providing leadership as perceived/experienced by respondents and derived in this study based on deviation from ideal leadership profile (Shao et al., 2012).
Transactional Leadership	Independent	A CIO's preferred method of providing leadership assessed as the average of the indicators for transactional leadership factors from the MLQ (Avolio & Bass, 2004).
Transformational Leadership	Independent	A CIO's preferred method of providing leadership assessed as the average of the indicators for transformational leadership factors from the MLQ (Avolio & Bass, 2004).
Mixed Leadership	Independent	A CIO's preferred method of providing leadership assessed as the average of the indicators for both transformational and transactional leadership factors from the MLQ (Shao et al., 2012).
Organization Size	Control	The number of individuals (integer) employed by a respondent's organization. Assessed as a range of values.
Industry Type	Control	The industry in which a respondent's organization operates (e.g., insurance, finance).
CIO's Gender	Control	The gender of a CIO as perceived by respondents (e.g., male, female).
Participant's Age	Control	The self-reported number of years (in integer) that a respondent has lived. Assessed as a range of values.
Participant's Gender	Control	The self-reported gender of a respondent (e.g., male, female).
Participant's Position	Screening	The position or level of authority of a respondent within his or her organization (e.g., manager, director).

Design Notation for Study

In this posttest-only nonexperimental study, the researcher used random participant selection. He examined individuals' perceptions about realized (not planned) strategies and leaders' behavior (treatment or X) using a single survey within a short time span to make a single observation (i.e., O) of the participants' experience (William, Shadish, Cook, & Campbell, 2002). Hence, the design notation for this study is X-O, where X represents treatment as evidenced by participants' experience and O represents the single measurement or observation made during the survey.

Some researchers (e.g., Trochim & Donnelly, 2006) cautioned that whereas the X-O design approach might not be the most effective method for assessing cause-effect relationships due to its inherent internal validity concerns, it is perfectly suited for examining influence relationships (or correlations), which was the focus of the current study. Also, the X-O design approach is conservative, feasible, and cost-effective, and it minimizes the chance of overlooking potential threats to validity by emphasizing the necessary critical components (Colamesta & Pistelli, 2014). To this end, the following steps comprised the rest of the study: (a) select participants, (b) collect data, (c) analyze data, (d) test hypotheses, and (e) report findings.

Target Population and Sample

Before delving into the details of this section, it is important to differentiate between the study's conceptualization of population and sample. As the unit of analysis for the study was the business unit level, the population for this study refers to all businesses for which the researcher wanted to make inferences based on a sample

collected from employees (respondents) of a subset (Sekaran & Bougie, 2013). A sample, therefore, refers to a subset of the population that only comprises the businesses represented in the study.

Population

The population for the study comprised all for-profit companies of varying sizes located in the United States of America that have an IT department. Firm size data from the U.S. Censors Bureau shows that over five million for-profit businesses are operating in the United States of America (U.S. Census Bureau, 2016). Furthermore, in this study, the researcher viewed each business from the perspective of a mid-level manager in the IT (or similar) department.

Sample

Sampling approach. During the design stages of this study, the research considered the need to generalize the results from the sample to the population. As a result, he carefully reviewed the sampling approach and sample size. For participants' selection, he used the random (probability) sampling technique. The study's sample frame included approximately one hundred thousand businesses in the United States of America represented by mid-level managers who were reachable through QuestionPro. Out of this number, only those managers who were informed about their organization's business strategy, IS strategy, and duties of the CIO participated in the study.

Sample size. Tabachnick and Fidell (2013) recommend the use of $n \geq 50 + 8k$ for testing correlation and $n \geq 104 + k$ for testing individual predictors. In both equations, n represents the sample size and k represents the number of independent variables (IVs). They and others (including Mertler & Vannatta, 2013) suggest using the

larger of the two *n* values. For this study, *k* is equal to 5 due to its five predictors: transactional leadership, transformational leadership, mixed leadership, business strategy, and IS strategy. By substituting the *k* value of 5 in both equations, the recommended sample sizes for this study were $n \geq 90$ for testing correlation and $n \geq 109$ for testing individual predictors.

Furthermore, G*Power, a free statistical power analysis software (Faul, Erdfelder, Buchner, & Lang, 2009; Mayr, Erdfelder, Buchner, & Faul, 2007) was used to calculate the sample size, using the following parameters. First, the Type I error, also known as alpha (α) or *significance level*, which represents the probability of rejecting the null hypothesis when it is true, was less than 5% (i.e., $p < 0.05$). Second, the Type II error, also known as beta (β), which represents the probability of failing to reject the null hypothesis when the alternate hypothesis is true, was less than 5% (i.e., the same value as Type I error). Third, the study's *statistical power* (1 - β) or *confidence interval*, which represents the probability of correctly rejecting the null hypothesis, was greater than 95% (or 0.95). Last, the *effect size*, which represents the strength of potential relationships between the study's constructs in the actual population, was set at a medium level (±0.3; Combs, 2010).
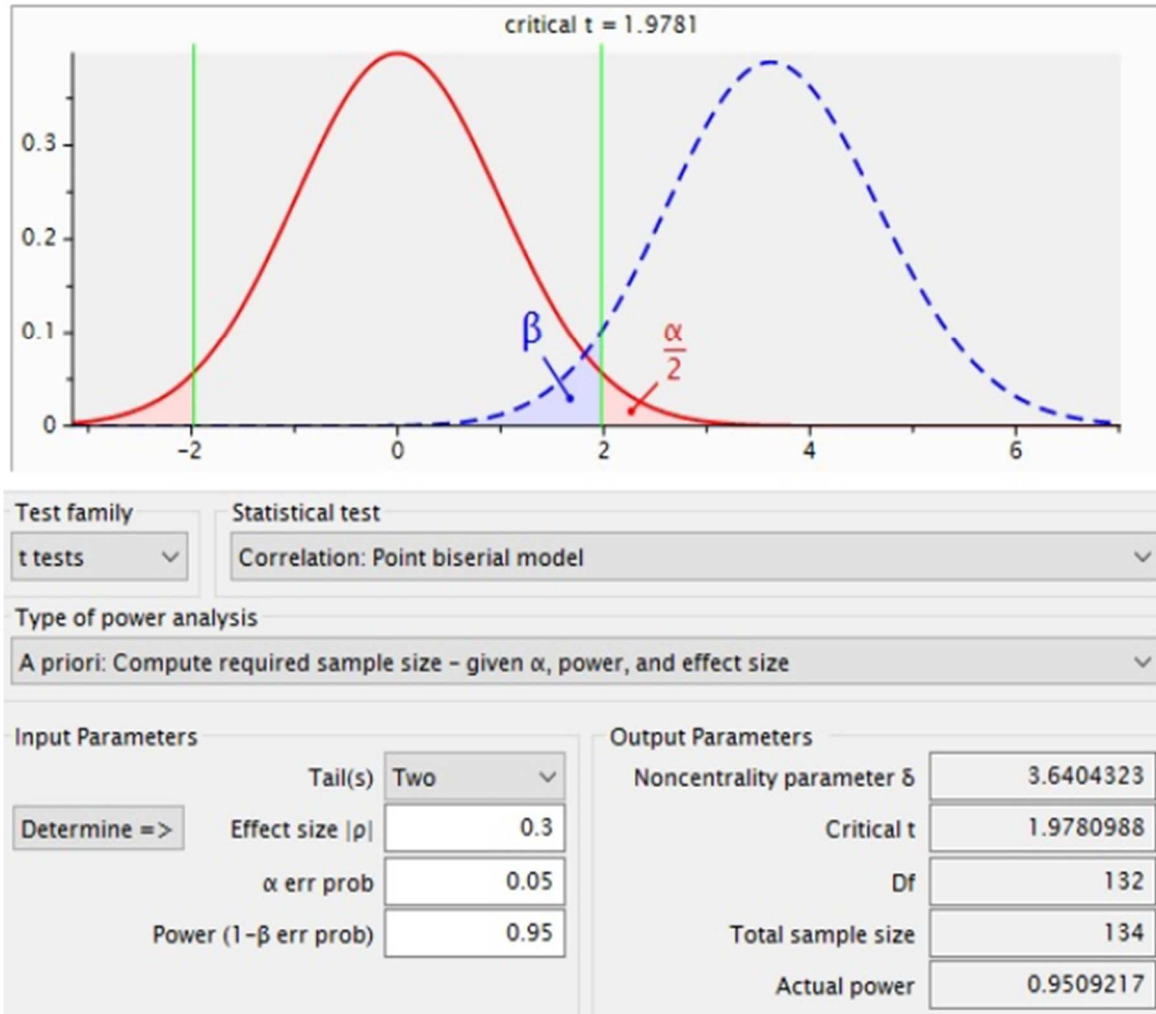
Figure 10. G*Power results for sample size calculation.

Using these values for significance level (0.05), statistical power (0.95), and

effect size (0.3), G*Power calculated a sample size of 134 or greater for two-tailed *t*-tests

and correlation tests. Figure 10 shows the results of the G*Power analysis. For this study,

the researcher settled for a sample size of 145. In arriving at this value, the researcher

adhered to the recommendations from Tabachnick and Fidell (2013) and other

methodologists on sample size determination. Furthermore, the sample size of 145, which

the researcher selected arbitrarily, is greater than the recommended minimum values of 109 and 134 from the analysis presented earlier.

Power Analysis

As was made evident in the last section, the researcher used an a priori power analysis approach for this study. Mayr et al. (2007) argued that this type of power analysis is superior to other forms of power analysis (e.g., post-hoc) because it controls types I and II errors. In deriving the sample size, the researcher assumed a statistical power of 95%. This value, which scholars typically used for strategic management and leadership studies, represents a high probability that subsequent tests will detect statistical significance if present (Bettis, 2012). In other words, at a 95% confidence interval, this study had sufficient power to detect the presence of relationships between its constructs (Field, 2013). Also, similar to most strategic management studies, the researcher used $p < 0.05$ to gauge the significance levels each time he examined the null hypothesis statistical significance tests (NHST; Cortina & Landis, 2011). When added to the mix, the effect size indicates the strength of the relationships between constructs (Ellis, 2010). Statistical significance (i.e., p-value) indicates whether a null hypothesis is wrong, and knowledge of a result's effect size, though different from practical significance, "can inform a subjective judgment about practical significance" (Grissom & Kim, 2012, p. 4). By extension, in this study, the researcher detected and reported effect sizes, and he used inferential statistical measures such as t test, F test, Cohen's d, Chi-square (χ^2) statistics, and the correlation coefficient (r) to gauge effect sizes during data analysis.

Procedures

Participant Selection

The researcher used five inclusion criteria for participant selection. They were:

1. The participant must be between 21 and 65 years old.

2. The participant must be employed by a for-profit business located in the United States of America, which has an IT/IS department.

3. The participant must be a mid-level manager who supervises the work of one or more employees.

4. The participant must be informed about the primary duties of the CIO.

5. The participant must be informed about the business strategy and IS strategy the company's leaders use to address market forces.

During the initial screening phase, QuestionPro (the survey service provider) used these five inclusion criteria to identify potential participants among its panel members. Then, QuestionPro selected potential participants from pre-screened panel members using simple random probability sampling strategy (Uprichard, 2013). To ensure that each participant had a sufficient knowledge of the primary duties of the company's CIO, QuestionPro further screened interested participants who visited the survey's website by asking each of them for answers to two screening questions. The questions were: (a) are you a member of the IT (or similar) department in your organization? (b) How informed are you about the primary duties of the most senior IT executive? The answer choices for the first screening question were (a) yes, and (b) no. The answer choices for the second screening question were (a) *well informed*, (b) *somewhat informed*, and (c) *not informed*. All respondents who completed the survey answered yes to the first screening question,

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and they were either well informed or somewhat informed about the primary duties of the CIO. In other words, QuestionPro also excluded any participant who was willing to take in the survey but did not have adequate knowledge of his or her company's IS/IT practices.

Protection of Participants

There were no identified risks to participants. The researcher had no direct contact with participants; instead, he contracted the service of QuestionPro, a reputable third-party entity that specializes in participant recruitment and survey administration. Furthermore, data for the study had no information that revealed the identities of participants or their organizations. Despite its non-revealing nature, the researcher saved the study's data on a secure password protected external hard drive that only the researcher can access. Also, he has restricted future access to the data to only members of his dissertation committee.

Data Collection

Data for the study came from single-individual responses, not matched-pair CIO-CEO responses, and the researcher collected the data in a cross-sectional fashion. Moreover, the study's data came from a web-based survey that was hosted by QuestionPro. The researcher provided the following items to QuestionPro: (a) measurement instrument containing survey questions and demographic questions, (b) IRB approved informed consent, and (c) information on the target population and sample frame. QuestionPro managed all interactions with participants, and they screened each participant using the selection criteria discussed in the previous section (Massat, McKay, & Moses, 2009; Waclawski, 2012). After that, QuestionPro administered the survey to

only individuals that consented to take part in the study. In other words, QuestionPro allowed only persons who voluntarily decided to participate in the study to complete the survey. Figure 11 shows the steps the researcher and QuestionPro used for the study's data collection plan.
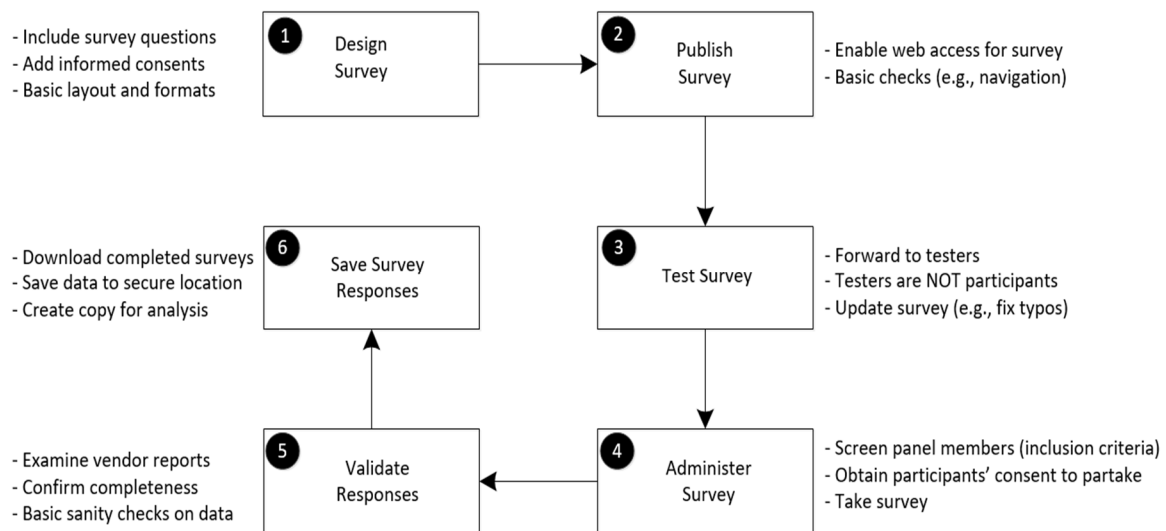

Figure 11. Data collection plan for the study.

Before data collection began, the researcher pre-tested the survey with five other Ph.D. candidates who provided feedback on aspects of the design, such as grammar, ease of use, and general layout of the website (Faux, 2010). The feedback from the testers and their suggestions for changes were incorporated in the survey and verified through another round of testing before QuestionPro published it for participants' access. The survey was active for three weeks during January 2017. At the end of that time, the researcher obtained the completed surveys from QuestionPro, validated the responses, saved the raw data to a secure location, and made a copy of the data for the analysis phase.

Data Analysis

As mentioned in the Research Design section, during data analysis, the scores for responses to the study's five primary constructs (transformational leadership, transactional leadership, mixed leadership, business strategy, and IS strategy) were treated as though those measurements were taken on an interval scale. For the statistical analysis, the researcher used both SPSS software (Version 24) and Microsoft Excel (Version 2013). Furthermore, he assessed all relationships between constructs at a significance level of less than 5% ($p < .05$), a confidence interval of 95% (CI $= .95$), and a medium effect size (ES $= .3$; Bhattacherjee, 2012; Combs, 2010). While referring to the complexity of empirical investigations involving other constructs and alignment between business and IS strategies, Sabherwal and Chan (2001) remarked that

> An approach that examines alignment using interaction terms or moderating effects of variables becomes cumbersome and problematic when multiple variables are involved. Because of these difficulties, a profile deviation approach relying on a theoretical or empirical "configuration" is recommended for assessing alignment between two multivariate constructs. (p. 20)

For example, this study's measurement instrument had six factors for business strategy and four factors for IS strategy; that is, there was a minimum of 24 (6 x 4) options involved in assessing strategic alignment when using interaction terms. Researchers (e.g., Bobko, 2011) cautioned that it is still unknown, how many interaction terms could raise concerns on the number of interactions needed to show significant relationships between alignment and other constructs such as leadership styles. To this end, the researcher adhered to recommendations from strategic management scholars (e.g., Quintana et al., 2015; Tabachnick & Fidell, 2013) by following these steps during data analysis.

1. Screen data and test for statistical assumptions.

2. Normalize research variables within each industry.

3. Classify respondent organizations into defenders, analyzers, and prospectors.

4. Calculate alignment scores for business strategy and IS strategy.

5. Classify the CIO's leadership style for each respondent's organization as either transactional, transformational, or mixed.

6. Test hypotheses.

Furthermore, on occasions, the researcher controlled for the effects of industry type and other variables (e.g., CIO's gender) when it was necessary to understand if those factors played a role in the hypothesized relationships. To achieve this, he employed three types of correlation techniques: *bivariate*, *partial*, and *semi-partial* correlations. As Field (2013) noted, bivariate correlation does not account for the effects of control variables. On the one hand, partial correlation is useful for examining the unique relationships between two variables (e.g., leadership style and strategic alignment) while controlling for the effects of other variables (e.g., organization size, industry).
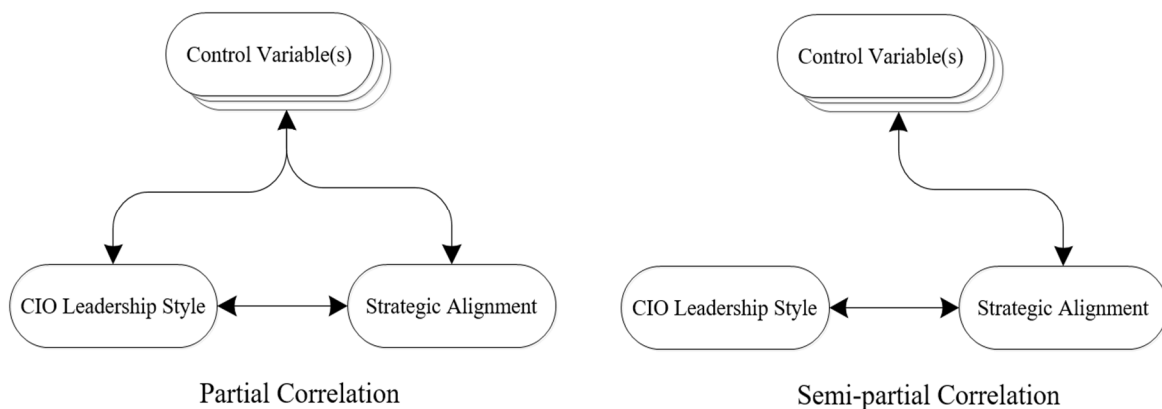

Figure 12. Partial versus semi-partial correlational data analysis.

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On the other hand, semi-partial correlation is useful for examining the variance in an outcome variable (strategic alignment) due to a predictor variable (leadership style). It does this by controlling for the effects of other variables (e.g., organization size, industry) on either the outcome or predictor variable alone (i.e., either leadership style or strategic alignment). Figure 12 shows a depiction of this difference. In keeping with good practice, this approach to data analysis ensured that the study minimized the influence of the third-variable problem to some degree (Field, 2013).

Instruments

The study's instrument, which has 71 questions in total, comprised 63 questions from two previously validated instruments, six demographic questions, and two screening questions. The researcher used 28 questions from the nine-factor MLQ Rater Form 5x-Short (simply referred to as MLQ; Avolio & Bass, 2004) that measured transactional leadership style (eight questions) and transformational leadership style (20 questions). Furthermore, all 35 questions from Sabherwal and Chan's (2001) instrument measured business strategy (18 questions) and IS strategy (17 questions).

Table 4 consists of two parts. The first part shows a summary of the study's key variables and the instruments the researcher used to measure each of them. The second part of Table 4 shows the six demographic variables. In addition to the variables shown in the tables, the survey instrument also consisted of the two screening questions discussed in the Participant Selection section in this chapter. The next two sections provide further insights into the study's instruments for leadership styles (measured with the MLQ), and business strategy and IS strategy (measured with the instrument from Sabherwal & Chan, 2001). In particular, the sections contain a discussion of how well (validity) and how

consistently (reliability) these instruments measure what they claim to measure (Sekaran & Bougie, 2013).

Table 4. *Summary of Study's Variables and Instruments*

Key Variables			
Variable		Instrument	
Name	Data Type	Name	Questions
Transformational Leadership	Continuous	MLQ	8
Transactional Leadership	Continuous	MLQ	20
Mixed Leadership	Continuous	N/A	N/A
Business Strategy	Continuous	Sabherwal & Chan (2001)	18
IS Strategy	Continuous	Sabherwal & Chan (2001)	17
Strategic Alignment	Continuous	N/A	N/A
Six Demographic Variables			
Variable		Variable	
Name	Data Type	Name	Data Type
Participant's Gender	Dichotomous	CIO's Gender	Dichotomous
Participant's Age (range)	Discrete	Organization's Size (range)	Discrete
Participant's Position	Discrete	Industry	Discrete

Multifactor Leadership Questionnaire (MLQ)

All MLQ questions are assessed on a 5-point Likert-scale (0 = *Not at all*, 1 = *Once in a while*, 2 = *Sometimes*, 3 = *Fairly often*, and 4 = *Frequently, if not always*). Each MLQ scale asks respondents to indicate how frequently the leader under investigation performed an action; for example, respondents indicated how frequently the leader "acts in ways that build my respect" (Avolio & Bass, 2004, p. 117). For the current study, the researcher purchased this instrument from the licensee (Mind Garden) and used

MLQ questions to gauge how frequently each respondent observed or experienced how his or her organization's CIO engaged in transactional, transformational, or both forms of leadership (Avolio, Bass, & Jung, 1999; Cerni, Curtis, & Colmar, 2010). Researchers have tested several versions of MLQ extensively; however, the next two subsections only focus on the current MLQ version. See Green (2014) for an extensive coverage of MLQ validation across multiple versions.

Validity. Confirmatory factor analysis (CFA) results for MLQ goodness of fit measures from studies (e.g., Antonakis et al., 2003; Hinkin & Schriesheim, 2008) showed Comparative Fit Index (CFI) values of 0.90 or greater. They also showed Root Mean Square Error Approximation (RMSEA) values of between 0.05 and 0.08 (see also Heinitz, Liepmann, & Felfe, 2005). Williams et al. (2009) remarked that "a model can be considered favorably if the CFI value exceeds 0.95 or the RMSEA is below 0.08" (p. 585). In other words, findings from these MLQ validation studies confirmed adequate loading for the nine-factor model of leadership that MLQ represents.

Reliability. Internal reliability scores for the rater version of MLQ reported in several studies indicate Cronbach's coefficient alpha (α) values greater than 0.70 (Cerni et al., 2010). For example, Green (2014) found that alpha scores for the five I's that measure transformational leadership fell between 0.70 and 0.83 (see also Schriesheim et al., 2009). Cho and Kim (2014) remind us that alpha, though not the same as reliability coefficient, serves as a lower bound of reliability. To this end, experts recommend that an alpha score of 0.70 or greater signifies acceptable reliability, as evidenced by findings from MLQ reliability tests.

Business and IS Strategies

Sabherwal and Chan (2001) developed this instrument to assess business strategy and IS strategy. As discussed in Chapter 2 (see Review of Literature), this instrument has two broad categories. The first, which measures business strategy, consists of six factors with a combined total of 18 questions, and the second, which measures IS strategy, consists of four factors assessed using 17 questions. All questions in this instrument are assessed using five-point Likert scales (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neutral,* 4 = *Agree*, and 5 = *Strongly Agree*). These questions ask respondents to indicate the extent to which they agree or disagree with a certain phenomenon. For example, one question on business strategy asks each respondent to assess the extent to which his or her organization develops strong relationships with customers.

There are no externally published psychometric properties on Sabherwal and Chan's (2001) instrument outside of the initial validation study. However, several researchers have used and validated this instrument (e.g., Chan et al., 2006; Gerow et al., 2014; Li & Tan, 2013; Taskin, Verville, & Keskin, 2014). Furthermore, instrument publishers listed this instrument among reputed entries in MIS Quarterly's *Survey Instruments in IS* database. As of this writing, Google Scholar shows that studies have either cited Sabherwal and Chan's (2001) work or used this instrument more than one thousand times (Belfo & Sousa, 2013). The next sections present the findings from Sabherwal and Chan's (2001) validation study, which other researchers such as Chan et al. (2006) have also verified.

Validity. Results from variance analysis performed using principal component analysis (PCA) support the retention of all business strategy and IS strategy components.

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In particular, *eigenvalue*, which represents the amount of total variance explained by each factor (Mertler & Vannatta, 2013), and the associated scree plots revealed satisfactory results. All six business strategy factors and three (out of four) IS strategy factors had an eigenvalue greater than 1; the lone IS strategy factor that had an eigenvalue below 1 was Decision Support Systems (eigenvalue = .97). Furthermore, the six factors for business strategy and the four factors for IS strategy accounted for 65% and 61% of the total variability respectively. Researchers (e.g., Tabachnick & Fidell, 2013) recommend that studies should only retain components with an eigenvalue greater than or equal to 1. Also, Mertler and Vannatta (2013) remarked that "components with four or more loadings above .60 in absolute value (i.e., |.60|) are reliable, regardless of sample size" (p. 246). Hence, the results show that the factors for business and IS strategies have adequate loading, which indicates acceptable instrument validity.

Reliability. Cronbach alpha values for four (out of six) business strategy constructs exceeded the threshold value of 0.7; the two factors, which had alpha values slightly below the threshold, where Risk Aversion (α = .67) and Aggressiveness (α = .60). Likewise, the alpha values for three (out of four) IS strategy constructs were either 0.7 or greater; the only factor that did not meet the threshold value was Market Information System (α = .67). The results, therefore, showed that the reliability of this instrument was acceptable.

Ethical Considerations

The researcher addressed several ethical considerations at different stages of the study beginning from the initial planning phases. Before starting this dissertation study, he submitted a research plan to the University's IRB for review and approval. Also,

during the multi-week review process, he provided the IRB with pertinent details on the study, which were similar to those already described in this chapter. All individuals involved in the study (i.e., the researcher and participants) followed IRB guidelines, which include exhibiting behaviors that reflect proper ethical conduct. By adhering to the IRB and the American Psychological Association (APA) guidelines, the researcher focused on mitigating ethical concerns to achieve three goals: (a) protect the rights and welfare of research participants, (b) protect intellectual property rights, and (c) ensure the accuracy of scientific knowledge.

First, participation in this study was voluntary. As discussed earlier in the Participant Protection section, all participants reviewed and accepted the study's informed consent to acknowledge their desire to participate in the study (Bikson et al., 2011). Next, by soliciting responses from individual participants, this study involved human subject research (HSR) that is known to have privacy challenges due to participant's identity protection. However, as sources (e.g., Fiske & Hauser, 2014) confirmed, the researcher's use of a third-party survey service for data collection ensured that he had no physical contact with participants. Also, the researcher had no knowledge of the participants' organizations because he did not need this information for the study.

Despite addressing privacy concerns through the use of a third-party survey service, the researcher also mitigated other "no-greater-than-minimal information risk" (Fiske & Hauser, 2014, para. 3). For example, he made sure to protect participants' demographic information, such as age, gender, and organization size. Also, he did not collect personally identifiable information such as respondent's name and company name from the participants. Last, the researcher addressed concerns related to bias in data

interpretation, data retention, data privacy, and data security by ensuring that he applied proper caution during the data analysis phase. He backed up the study's data and saved it to a secure location, away from unauthorized access, and he will retain it for the minimum period stipulated by the University's IRB (Bikson et al., 2011).

Summary

In Chapter 3, the writer described the methods and procedures used for data collection and analysis. In particular, he expanded on previous chapters by covering, in detail, topics related to the study's design, adopted methodologies, procedures including data collection and analysis, instruments used, and ethical concerns. The step-by-step approach, which the writer adopted during the presentation of the chapter's contents, served to provide relevant guidelines to aid readers' in-depth understanding of subsequent phases of the study. In the next chapter, the writer built on the information provided here and in previous sections to describe the results of the data analysis, together with a presentation of the data analyzed and the findings of the study.

CHAPTER 4. RESULTS

This chapter presents the results of the data analysis that answered the omnibus

research question posed in Chapter 1: To what extent, if any, does CIO's leadership style

correlate with strategic alignment when moderated by business strategy? Chapter 4

presents the survey's outcome and then describes the data analysis in detail, as follows:

(a) description of the sample, (b) hypothesis testing, (c) summary of the hypothesis

testing, and (d) post-hoc analysis.

Description of the Sample

The survey service provider e-mailed the survey to 528 randomly selected panel

members who met the inclusion criteria specified in Chapter 3. Of this total, 332 potential

participants visited the survey's website, which began with a landing page that introduced

the survey followed immediately by a section that solicited each visitor's consent to take

part in the study. Of those who visited the website, 196 correctly answered the two

screening questions and then proceeded to complete the survey. The data collection

period yielded 147 completed responses, which represented a response rate of 27.84%.

Respondents were from businesses in 37 states spread across all regions of the

United States. More respondents were male (62.6% or 92 out of 147) than female (37.4%

or 55 out of 147). Most of the respondents (i.e., 137 out of 147) were IT managers (62 or

42.2%) or directors (60 or 40.8%). Others included 15 supervisors (10.2%), nine

chairmen of IT committees (6.1%), and a chief technology officer (CTO). The

respondents belonged to different age groups. Most of them were between 30 and 50

years old (70.1% or 103 out of 147); 19 (12.9%) participants were between 21 and 29 years of age. Similar to respondents' gender, most of the CIOs at the sampled businesses were men (76.2% or 112 out of 147).

Next, organization sizes varied considerably in the sample; however, each business fit into one of three groups based on size. The first group consisted of businesses that had fewer than 500 employees (59.86% or 88 out of 147). Using guidelines from the U.S. government's classification scheme for businesses, this group was called the "small enterprise" group (U.S. Census Bureau, 2016). The second group, which accounted for 25.85% (38 out of 147) of the total, consisted of businesses with between 500 and 999 employees and was named the "medium enterprise" group. The last group of businesses accounted for 14.29% (21 out of 147) of the total and comprised of businesses with 1,000 or more employees, was the "large enterprise" group. Figure 13 shows a breakdown of the organizations by size.
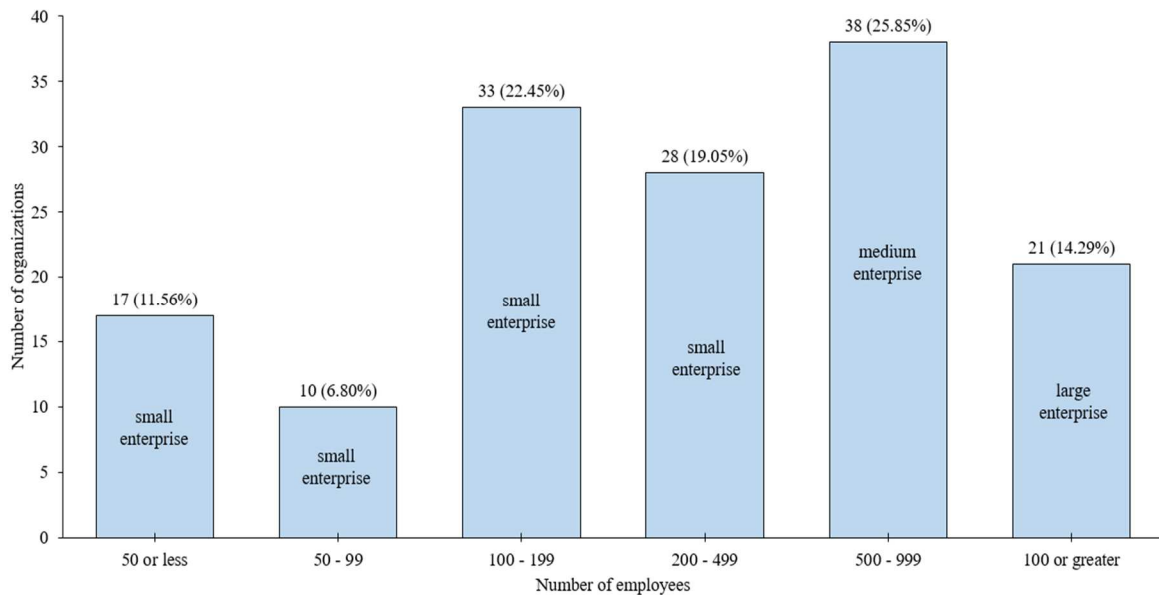

Figure 13. Summary of sampled organizations' sizes.

Also, as Figure 13 shows, the sample contained more small enterprises than both medium and large enterprises combined. The original sample contained 27 distinct industries; however, for brevity, these were grouped based on similarities and guidelines according to the North American Industry Classification System (NAICS; see Statistics Canada, 2017). For example, the three industry types: *communications*, *information technology*, and *advertising* comprised the "technology, communication, & media" group. At the end of the grouping exercise, eight industry groups emerged. Figure 14 shows the different industry groups and the number of organizations within each group. Over 70% of the businesses were from industries involved in technology (38.1% or 56 out of 147 businesses), engineering (17% or 25 out of 147), and administration (15.65% or 23 out of 147). Figure 14 also shows that the sample contained a significant number of organizations from other industries, such as health care (8.84% or 13 out of 147), financial services (7.48% or 11 out of 147), and education (6.8% or 10 out of 147).
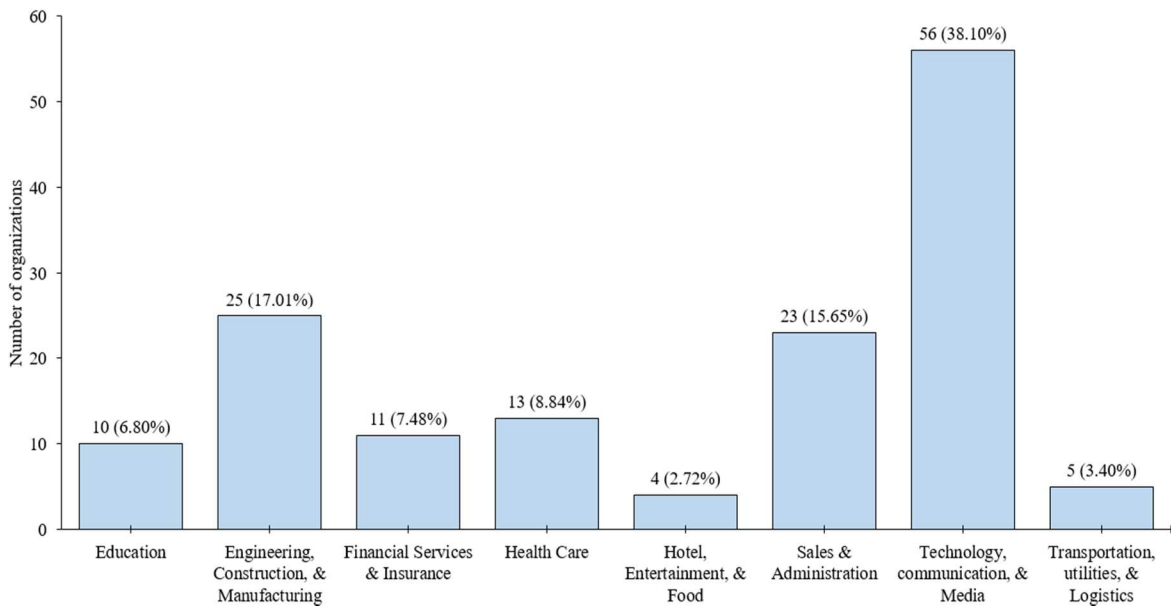

Figure 14. Summary of sampled industries (grouped).

For the directly-assessed constructs (i.e., business strategy, IS strategy, transformational leadership, and transactional leadership), derived value for each factor involved calculation of the average value of all indicators that measured that factor in the sample. For example, in the case of business strategy, the "defensiveness" factor for each organization was the average value of the four indicators that assessed that factor in the survey responses. Also, the analysis factor of business strategy for each organization was the average value of the three indicators that measured that factor. Table 5 shows the average (mean) and standard deviation (*SD*) values for the factors of the study's main constructs that were directly assessed by the survey instrument.

Table 5 also shows skewness and kurtosis values from initial normality checks for each factor. Results indicated a moderate negative skewness and kurtosis in most cases, and in particular, raw scores for all the leadership factors had moderate normal distribution because their kurtosis and skewness values were all close to zero and ranged between -1 and +1 (Ho & Yu, 2015; Mertler & Vannatta, 2013). Furthermore, whereas some of the factors for business and IS strategies were normally distributed, the kurtosis and skewness values for three of the six business strategy factors (defensiveness, analysis, futurity) and one of the four IS strategy factors (strategic decision support system) suggested a potential violation of normal distribution.

Table 5. *Means and Standard Deviations for Non-Normalized Factors*

Construct/Factor	Items	Mean	SD	Skewness	Kurtosis
Business Strategy					
Defensiveness	4	4.30	0.56	-1.41	2.98
Analysis	3	4.11	0.65	-1.19	2.81
Risk Aversion	3	3.88	0.74	-0.54	-0.15
Proactiveness	3	4.00	0.78	-1.00	0.93
Futurity	2	4.09	0.78	-1.61	3.61
Aggresiveness	3	3.66	0.86	-0.48	-0.50
IS Strategy					
Operational Support Systems	6	4.16	0.60	-1.11	1.74
Interorganizational Systems	4	4.07	0.67	-1.02	1.14
Market Information Systems	4	3.99	0.67	-0.56	-0.11
Strategic Decision Support Systems	3	4.09	0.69	-1.26	2.12
Transformational Leadership					
Idealized Influence - Attributes	4	2.66	0.85	-0.46	-0.45
Idealized Influence - Behaviors	4	2.53	0.85	-0.31	-0.72
Intellectual Stimulation	4	2.58	0.93	-0.40	-0.48
Inspirational Motivation	4	2.77	0.86	-0.62	-0.25
Individual Consideration	4	2.48	0.90	-0.80	0.32
Transactional Leadership					
Management-by-Exception: Active	4	2.36	0.80	-0.30	-0.13
Contingent Reward	4	2.53	0.85	-0.45	-0.28

Note. The business strategy and IS strategy factors were measured on a 5-point Likert scale from 1 to 5, and all the leadership style factors were measured on a 5-point Likert scale from 0 to 4. The mean and *SD* values are for the non-normalized factor scores.

Categorical variables. In order to adequately represent the moderating effects of the demographic variables (i.e., gender, age, and organization size) on the relationship between leadership style and strategic alignment, Hayes and Preacher (2014) recommended dummy coding all categorical variables. This study featured two types of dummy variables—dichotomous and multi-categorical.

Dichotomous variables. Both respondent's gender and CIO's gender were dichotomous variables (i.e., they consisted of two choices, female or male); hence, both variables were coded *male* as 0 and *female* as 1. In other words, the male group acted as the reference category for analysis involving gender. As a result, for statistical analysis involving gender, the effects of the gender variable (i.e., respondent's gender or CIO's gender) reflected being in the female group relative to the male group (Daly, Dekker, & Hess, 2016).

Multi-categorical variables. As discussed earlier, respondents' age and organization size each had more than two categories (see the description of the sample in Chapter 4). However, these categories were reduced to dichotomous dummy variables (Greenacre & Primicerio, 2013). For the respondent's age, all values of *39 or less* were coded as 0 (younger respondent) and values *greater than 39* were coded as 1 (older respondent). For organization size, the code 0 indicated all values of *less than 1,000* [small or medium enterprise (SME)], the code 1 indicated values of *1,000 or greater* (large enterprise). This categorization of businesses into SMEs and large enterprises aligned with the U.S. government's classification of businesses by size (U.S. Census Bureau, 2016).

Statistical Assumptions

Using normalized scores to examine univariate outliers, according to Mertler and Vannatta (2013), involves the following conditions: if a normal distribution is assumed, approximately 99% of the scores will lie within three standard deviations of the mean. Therefore, *z* value greater than +3.00 or less than -3.00 indicates an unlikely value and the case should be considered an outlier (p. 30). For this study, all of the standardized

variables met or exceeded the 99% threshold. In particular, 99% or greater of standardized scores for indicators of the six business strategy factors, four IS strategy factors, four transformational leadership factors, and two transactional leadership factors had z values of less than +3.00 or greater than -3.00. Furthermore, normal Q-Q plots used to examine all standardized scores between business or IS strategy factors and transformational or transactional leadership factors revealed linear relationships for the cases examined. Also, the results of the Kolmogorov-Smirnov and Shapiro-Wilk tests significantly accepted the hypothesis of normality between factor pairs. Hence, these tests confirmed the support for the normality and linearity of the scores.

Derivation of Unique Postures

Assessment included each organization's unique business strategy type, its strategic alignment score, and its CIO's leadership style as the lack of deviation of that organization's actual score from a priori deduced ideal profiles (Baker et al., 2011; Shao et al., 2012). Following recommendations from methodologists (e.g., Blackmore & Keith, 2013; Greenacre & Primicerio, 2013), data analysis included calculation of the Euclidean distance between the actual score (X) and the ideal profile (Y) for each organization's business strategy, IS strategy, and leadership style using the following equation:

$$Distance_{X,Y} = \sqrt{\sum_{i=1}^{k} \{(X_i - Y_i)^2\}}. \tag{1}$$

[*Note.* In Equation 1, k represents the number of factors for either business strategy ($k = 6$), IS strategy ($k = 4$), or leadership style ($k = 7$). X_i represents the normalized score for the ith factor, and Y_i represents the normalized ideal profile value for the ith factor.]

Business strategy. As Sabherwal and Chan (2001) advised, researchers must use the ideal profile values for the six business strategy factors to derive each organization's business strategy. Table 6 shows the ideal profile including a rating of either *high*, *medium*, or *low* for each factor's contribution towards each business strategy type. Furthermore, Table 6 includes corresponding normalized scores of 1, 0, and -1 for the high, medium, and low ratings, respectively (see also Chan et al., 2006; Li & Tan, 2013).

Table 6. *Ideal Profile and Rating for Business Strategy Factors*

| | Business Strategy Type and Rating | | | | | |
| | Defenders | | Prospectors | | Analyzers | |
Factor	Rating	Value	Rating	Value	Rating	Value
Defensiveness	High	1	Low	-1	Medium	0
Risk Aversion	High	1	Low	-1	High	1
Aggressiveness	Medium	0	High	1	Medium	0
Proactiveness	Low	-1	High	1	Medium	0
Analysis	Medium	0	Medium	0	High	1
Futurity	High	1	Medium	0	Medium	0

For each organization, the distance between the six business strategy factors' normalized scores and ideal profile values were calculated separately for the defender, prospector, and analyzer strategy types. Then, the business strategy type with the least Euclidean distance was assigned to that organization. For example, the normalized scores for Case 020 were defensiveness (1.21), risk aversion (-0.16), aggressiveness (-0.64), proactiveness (-0.84), analysis (-0.52), and futurity (-0.32). In this case, the Euclidean distances for each of the three business strategy types were defender (1.96), prospector (3.47), and analyzer (2.52). Therefore, that organization received "defender" as the

business strategy type because its defender business strategy had the least Euclidean distance when compared to the Euclidean distance for prospector and analyzer business strategy types. This analysis revealed that two organizations out of 147 (Cases 058 and 127) had two business strategy types with the least Euclidean distance. Excluding both cases from subsequent analysis resolved the tie (see Chan et al., 2006 for a similar treatment). Hence, the final data for this study included 145 organizations: 20 defenders (13.8%), 44 prospectors (30.3%), and 81 analyzers (55.9%).

IS strategy. In developing the ideal profile, as described in Chapter 2, Sabherwal and Chan (2001) argued that defenders rely on IS for efficiency (IS EFF), prospectors rely on IS for flexibility (IS FLEX), and analyzers rely on IS for comprehensiveness (IS COMP). For example, the IS strategy for the organization described in the previous example (Case 020) was *IS for Efficiency* because its leaders pursued a defender business strategy. Based on these guidelines, a number of methodologists, including Chan et al. (2006), recommended that researchers who rely on profile deviation approach for strategic alignment assessment should calculate and examine only the Euclidean distance for the IS strategy that corresponds to an organization's business strategy type. Table 7 shows the ideal profile ratings and values for the four IS strategy factors: operational support, market information, interorganizational support, and strategic decision support systems.

Table 7. *Ideal Profile and Rating for IS Strategy Factors*

	IS Strategy Type for Business Strategies and Rating					
	Defenders		Prospectors		Analyzers	
	IS EFF		IS FLEX		IS COMP	
Factor	Rating	Value	Rating	Value	Rating	Value
Operational Support Systems	High	1	Low	-1	Medium	0
Market Information Systems	Low	-1	High	1	High	1
Interorganizational Support Systems	High	1	Medium	0	High	1
Strategic Decision Support Systems	High	1	High	1	High	1

Note. IS EFF = *IS for Efficiency*, IS FLEX = *IS for Flexibility*, IS COMP = *IS for Comprehensiveness*.

Table 7 also indicates the assessment of the Euclidean distance for IS strategy using the ideal profile of IS for Efficiency for defenders, the distance using the ideal profile of IS for Flexibility for prospectors, and the distance using the ideal profile of IS for Comprehensiveness for analyzers. Similarly, analysis included calculation of the distance between each organization's IS strategy and the ideal IS strategy for the matching business strategy type. For example, the sample organization (Case 020) discussed in the previous example had these normalized IS strategy scores: operational support systems (-1.11), market information systems (-0.73), inter-organizational support systems (-0.98), and strategic decision support systems (-0.93). As this organization had a defender business strategy, the ideal profile of IS for Efficiency determined the Euclidean distance for Case 20's IS strategy, which was 3.49.

Strategic alignment. Following recommendations from Baker et al. (2011) and Chan et al. (2006), subtracting the Euclidean distance for IS strategy from 1 yielded the strategic alignment for each organization. Also, Sabherwal and Chan (2001) used a similar approach to calculate strategic alignment scores, stating that a "smaller Euclidean

distance indicates that the IS strategy is closer to the ideal profile and that the degree of alignment is higher. Therefore, subtracting the distance measure from 1 helped to convert it to a measure of alignment" (p. 23). For example, the strategic alignment score was -2.49 (i.e., 1 minus 3.49) for Case 020. Thus, at the time of this study, that organization had a moderate strategic alignment because its alignment score of -2.49 was far from 1, which represented perfectly aligned business and IS strategies (Baker et al., 2011).

Leadership style. Finally, use of the profile deviation approach determined the CIO's leadership style for each organization. This calculation relied on Shao et al.'s (2012) ideal profile and the ratings for factors of transformational leadership, transactional leadership, and mixed leadership styles shown in Table 8.

Table 8. *Ideal Profile and Rating for Leadership Style Factors*

| Factor | Leadership Style and Rating | | | | | |
| | Transformational | | Transactional | | Mixed | |
	Rating	Value	Rating	Value	Rating	Value
Idealized Influence - Attributes	High	1	Low	-1	High	1
Idealized Influence - Behaviors	High	1	Low	-1	High	1
Inspirational Motivation	High	1	Low	-1	High	1
Intellectual Stimulation	High	1	Low	-1	High	1
Individual Consideration	High	1	Low	-1	High	1
Contingent Reward	Low	-1	High	1	High	1
Management-by-Exception: Active	Low	-1	High	1	High	1

To process data for each organization required calculation of three Euclidean distances between normalized scores for the seven leadership style factors and their corresponding ideal profile ratings. The first distance measured the deviation from the

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transformational leadership style's ideal profile, the second distance measured the deviation from the transactional leadership style's ideal profile, and the third distance measured the deviation from the mixed leadership style's ideal profile.

The next step was to set the CIO's leadership style for that organization to the leadership style with the least deviation. For example, Case 55 had the following normalized scores: Idealized Influence - Attributes (0.37), Idealized Influence - Behaviors (0.00), Inspirational Motivation (1.14), Intellectual Stimulation (1.45), Individual Consideration (0.55), Contingent Reward (0.82), Management-by-Exception: Active (0.36). Application of Equation 1 yielded three Euclidean distances as transformational leadership (2.64), transactional leadership (4.04), and mixed leadership (1.50). These results indicated mixed leadership as the leadership style of the organization's CIO because that style had the least Euclidean distance of the leadership styles.

At the end of this exercise, the frequencies for the dominant leadership styles of the 145 CIOs were transformational leadership (17), transactional leadership (63), and mixed leadership (65). This result shows that most of the CIOs preferred either transactional leadership (43.45%) or mixed leadership (44.83%) styles, and only a few of the CIOs preferred transformational leadership style (11.72%). Table 9 shows the breakdown of leadership style according to the strategic posture of the organizations.

Table 9. *Leadership Style Distribution by Business Strategy Typology*

CIO Leadership Style	Rating	Business Strategy			Total
		Defenders	Prospectors	Analyzers	
Transformational	Count	4	6	7	17
	Percent	20.00%	13.64%	8.64%	11.72%
Transactional	Count	11	24	28	63
	Percent	55.00%	54.55%	34.57%	43.45%
Mixed	Count	5	14	46	65
	Percent	25.00%	31.82%	56.79%	44.83%
Total	Count	20	44	81	145
	Percent	100.00%	100.00%	100.00%	100.00%

Note. Percentage value represents the percentage within CIO leadership style.

The results revealed a gradual upward trend in the number of CIOs who preferred each leadership style for defenders, prospectors, and analyzers, in that order. Next, more CIOs in organizations with defender business strategy preferred the transactional leadership style (55%) to either the transformational leadership (20%) or mixed leadership (25%) style. Moreover, similar to defenders, more CIOs in organizations with prospector business strategy preferred transactional leadership style (54.55%) to either transformational leadership (13.64%) or mixed leadership (31.82%) style.

However, whereas transactional leadership was the dominant style for CIOs of defenders and prospectors, this was not the case for analyzers. Most CIOs of analyzers preferred mixed leadership (56.79%) to either transformational leadership (8.64%) or transactional leadership (34.57%). Following these revelations, the researcher assessed the strength of the association between the three CIO leadership styles and the three business strategy types using Pearson's chi-square test and found a statistically significant

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association between them χ^2 (4) = 11.29, $p < .05$. Indeed, these findings presented the initial evidence for the earlier suspected pattern in and the strength of the association between CIO's leadership style and strategic business orientation (cf. Argyrous, 2011; Shao et al., 2012).

Hypotheses Testing

Hypotheses testing in this study began with examining the omnibus research question (RQ) and testing the corresponding null and alternate hypotheses. The second round of tests involved examination of the nine subquestions (SQs) and their corresponding hypotheses. Testing of the first set of hypotheses verified the significance of the relationships between CIO's leadership style, business strategy, and strategic alignment at a systemic (or high) level. Then, the second round of testing determined the influence of other moderator variables on the same relationships at a more granular level. The following sections present the details of the hypotheses tests.

Omnibus Research Question (RQ) Hypothesis

Testing the hypothesis (H) for the omnibus research question (RQ) involved examination of the relationships among normalized scores for the three CIO leadership styles (transactional, transformational, and mixed) and between each of the leadership styles and strategic alignment using a two-tailed bivariate correlation. Table 10 shows the results for the Pearson's product moment correlation coefficients (Pearson's r) from the statistical analysis. In Table 10 and subsequent tables showing correlation results, the asterisk notations highlight the Pearson's product moment correlation coefficients equal to or less than the two conventional alpha levels of .05 (*) and .001 (**).

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Table 10. *Correlation Matrix for Leadership Style and Strategic Alignment*

	Strategic Alignment	Transactional	Transformational
Transactional	.49** [.32, .63]		
Transformational	.55** [.39, .67]	.83** [.74, .89]	
Mixed	.55** [.39, .68]	.90** [.84, .94]	.99** [.98, .99]

Note. Bias-corrected and accelerated (BCa) bootstrap 95% CIs are reported in square brackets.
** represents *p* < .001.

Also, in Table 10, the values in the strategic alignment column show the extent of

the relationship between each of the CIO's leadership styles and strategic alignment. The

results indicated that all three leadership styles had statistically significant positive

relationships with strategic alignment. Bias-corrected and accelerated bootstrap 95% CIs

are reported in square brackets. That is, strategic alignment was significantly related to

transactional leadership (*r* = .49 [.32, .63], *p* < .001), transformational leadership (*r* = .55

[.39, .67], *p* < .001), and mixed leadership (*r* = .55 [.39, .68], *p* < .001). Furthermore, the

effect sizes for all three associations (i.e., the correlation coefficients) exceeded the

threshold value of 0.3 (medium effect size) used for the study (see Chapter 3). The

coefficient of determination (R^2) for each association, calculated by squaring the

correlation coefficient (Field, 2013), determined the proportion of variance shared by the

variables. Transactional leadership shared 24.01% of the variability in strategic

alignment; also, both transformational leadership and mixed leadership each shared

30.25% of the variability in strategic alignment.

Hypotheses for Subquestions (SQs)

Chapter 2 described this study's detailed conceptual model and the hypothesized

relationships between each of the CIO's leadership styles and strategic alignment that

constituted the purpose of this dissertation study. Figure 15 shows the study's research

model, which formed part of the detailed conceptual model. During the latter stages of

the study, this model provided a focus for the statistical analysis and discussions related

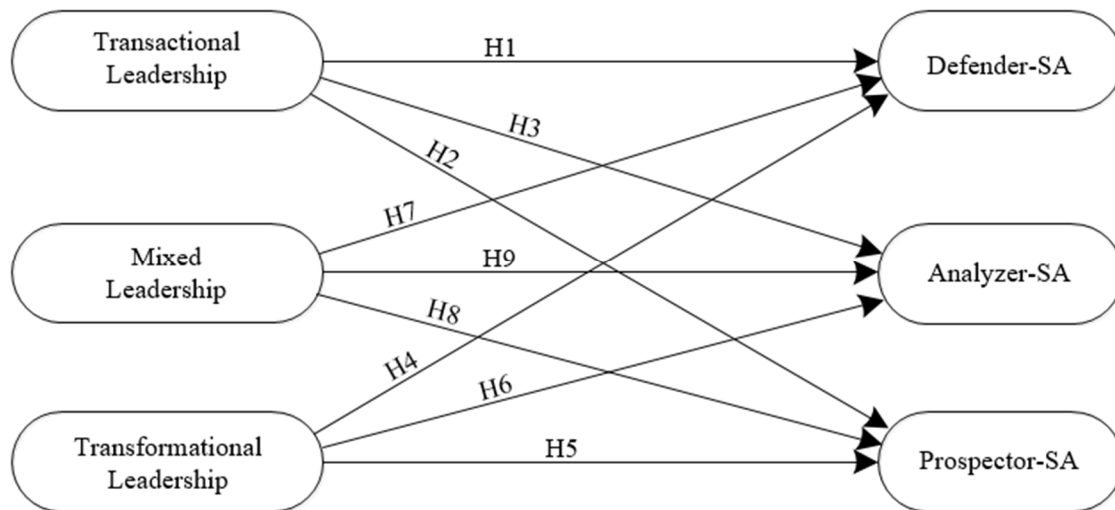to the subquestions and their hypotheses.

Figure 15. Research model for the study. The variables Defender-SA, Prospector-SA, and Analyzer-SA represent strategic alignment for defenders, prospectors, and analyzers respectively.

Before testing the hypotheses for the subquestions, each of the 145 organizations

fit into one of nine categories, with each representing a bivariate association depicted by

the hypothesis for the subquestion shown in Figure 15 (i.e., H1, H2, H3, H4, H5, H6, H7,

H8, and H9). The first step was to divide the organizations into three groups according to

business strategy type. The result produced three groups: defenders (20), prospectors

(44), and analyzers (81). Then, subdividing the organizations within each strategy type

group yielded three subgroups defined by the CIO's leadership style. Table 11 shows the

nine categories, which aligned with the nine hypotheses (H1 to H9), and the count of

organizations (i.e., sample size) included in each category (bivariate association).

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Table 11. *Sample Breakdown by Hypothesis*

Business Strategy Type	Count	Hypothesis	CIO Leadership Style	Strategic Alignment
			Hypothesized Relationships	
Defenders	11	H1	Transactional	Defender-SA
	4	H4	Transformational	Defender-SA
	5	H7	Mixed	Defender-SA
Prospectors	24	H2	Transactional	Prospector-SA
	6	H5	Transformational	Prospector-SA
	14	H8	Mixed	Prospector-SA
Analyzers	28	H3	Transactional	Analyzer-SA
	7	H6	Transformational	Analyzer-SA
	46	H9	Mixed	Analyzer-SA

After the split, the next step was to test each hypothesis by correlating normalized scores for each CIO's leadership style with strategic alignment for the business strategy type (i.e., defenders, prospectors, and analyzers). For example, the test of the first hypothesis (H1) included the 11 organizations that had defender business strategy and CIOs who preferred transactional leadership (see Table 11). Then, the test concluded with a correlation of the normalized scores for transactional leadership with strategic alignment scores for those organizations.

Table 12 shows the correlation coefficients (Pearson's *r*) for all nine hypotheses tested using bivariate correlation (two-tailed). The results showed that whereas the relationship between transactional leadership and strategic alignment was not statistically significant for defenders ($r = .09$, *ns*), transactional leadership had a statistically significant relationship with strategic alignment for both prospectors ($r = .50$ [-.05, .80], $p < .05$) and analyzers ($r = .58$ [.24, .83], $p < .001$). Furthermore, transformational

leadership had a statistically significant negative relationship with strategic alignment for

defenders ($r = -.96$, $p < .05$); however, its relationship with strategic alignment was not

significant for both prospectors ($r = -.09$, ns) and analyzers ($r = .18$, ns). None of the

relationships between mixed leadership and strategic alignment was statistically

significant for the three business strategy types.

Table 12. *Bivariate Correlation Results for Subquestions' Hypotheses*

	Strategic Alignment (SA)		
CIO Leadership Style	Defender-SA	Prospector-SA	Analyzer-SA
Transactional	.09	.50* [-.05, .80]	.58** [.24, .83]
Transformational	-.96*	-.09	.18
Mixed	.82	-.06	.29

Note. Defender-SA, Prospector-SA, and Analyzer-SA represent strategic alignments for defenders, prospectors, and analyzers respectively. Bias-corrected and accelerated (BCa) bootstrap 95% CIs are reported in square brackets. * represents $p < .05$, ** represents $p < .001$.

Three (out of nine) hypotheses tested for the SQs reported statistically significant

results. All three cases had effect sizes larger than the threshold value of 0.3 (medium

effect size) used for the study. Nonetheless, the validity of two of the three statistically

significant findings was questionable due to problems with reported 95% confidence

intervals (CIs). The 95% CI for the association between transactional leadership and

Prospector-SA crossed zero; also, SPSS failed to calculate 95% CI for the association

between transformational leadership and strategic alignment for Defender-SA due to

small sample size ($n = 4$). Hence, support for these two cases was inconclusive.

Summary of the Hypothesis Testing

Findings from this study showed statistically significant support for the alternate hypothesis (H_A) of the omnibus research question (RQ). Also, they showed support for the alternate hypothesis of SQ3 ($H3_A$) and only partial support for the alternate hypotheses of SQ2 and SQ4 ($H2_A$ and $H4_A$). However, contrary to earlier findings, which showed either full support or partial support for the alternate hypothesized relationships, this study's findings did not include a statistically significant correlation that either supported or partially supported the alternate hypothesis for SQ1 ($H1_A$), SQ5 ($H5_A$), SQ6 ($H6_A$), SQ7 ($H7_A$), SQ8 ($H8_A$), or SQ9 ($H9_A$). Table 13 presents a summary of these findings.

Table 13. *Summary of Results for Hypotheses Tests*

Research Question	Alternate Hypothesis	Sample Size (n)	Study's Findings
RQ	H_A: There is a statistically significant correlation between CIO leadership style and strategic alignment when moderated by business strategy.	145	Supported
SQ1	$H1_A$: There is a statistically significant correlation between CIO transactional leadership style and business-IS strategic alignment when moderated by defender business strategy.	11	Not supported
SQ2	$H2_A$: There is a statistically significant correlation between CIO transactional leadership style and business-IS strategic alignment when moderated by prospector business strategy.	24	Partially supported
SQ3	$H3_A$: There is a statistically significant correlation between CIO transactional leadership style and business-IS strategic alignment when moderated by analyzer business strategy.	28	Supported
SQ4	$H4_A$: There is a statistically significant correlation between CIO transformational leadership style and business-IS strategic alignment when moderated by defender business strategy.	4	Partially supported

Table 13. *Summary of Results for Hypotheses Tests* (cont.)

Research Question	Alternate Hypothesis	Sample Size (n)	Study's Findings
SQ5	H5$_A$: There is a statistically significant correlation between CIO transformational leadership style and business-IS strategic alignment when moderated by prospector business strategy.	6	Not supported
SQ6	H6$_A$: There is a statistically significant correlation between CIO transformational leadership style and business-IS strategic alignment when moderated by analyzer business strategy.	7	Not supported
SQ7	H7$_A$: There is a statistically significant correlation between CIO mixed leadership style and business-IS strategic alignment when moderated by defender business strategy.	5	Not supported
SQ8	H8$_A$: There is a statistically significant correlation between CIO mixed leadership style and business-IS strategic alignment when moderated by prospector business strategy.	14	Not supported
SQ9	H9$_A$: There is a statistically significant correlation between CIO mixed leadership style and business-IS strategic alignment when moderated by analyzer business strategy.	46	Not supported

Post-hoc Analysis

Effect of Organization Size on Relationships

Based on size alone, two types of organizations comprised the sample for this study. The first, SME, was organizations with fewer than 1,000 employees, and the second category was organizations with 1,000 or more employees (i.e., large enterprises). The analysis included correlation of normalized scores for the three leadership styles with strategic alignment scores while controlling the effect of organization size (SMEs and large enterprises) on the relationship between CIO's leadership style and strategic alignment.

The results for the first-order two-tailed partial correlations, one from testing the omnibus research question's hypothesis (H) and one from the subquestions (H1 to H9),

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were identical to the results for the initial bivariate correlations. In other words, all correlations that were originally statistically nonsignificant remained insignificant after controlling for organization size—although, in some cases, the Pearson's product moment correlation coefficients changed considerably. Furthermore, those correlations that were initially significant remained significant after controlling for organization size, and their correlation coefficients did not change considerably. Therefore, the results showed that an organization's size did not affect the relationship between a CIO's leadership style and strategic alignment.

Effect of Gender on Relationships

The analysis also included an examination of the effects of both respondent's gender and CIO's gender on the relationship between leadership style and strategic alignment. However, unlike organization size, in this case, the effect of gender was controlled only on the CIO's leadership style. The results for all cases, except one, of the semi-partial correlations (two-tailed) were identical to the results of the initial bivariate correlation testing of the primary research question's hypothesis (H) and those of the subquestions (H1 to H9).

Earlier results indicated that for H9, the bivariate correlation between mixed leadership style and strategic alignment in analyzers was not statistically significant ($r = .29$ [-.01, .49], *ns*). However, when the effect of respondent's gender on mixed leadership style was controlled (using male respondents as the reference group), the outcome was different. The relationship between mixed leadership style and strategic alignment for analyzer business strategy changed from being statistically nonsignificant to being statistically significant ($r = .32$ [.03, 1.78], $p < .05$). In other words, respondents' gender

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might have influenced their perception of a CIO's mixed leadership style for those organizations that had an analyzer business strategy.

Effect of Respondents' Age on Relationships

As discussed earlier in this chapter, the respondent's age variable split into two groups. The first group was younger respondents whose age was 39 years or less, and the second group included older respondents whose age was 40 years or greater. The analysis re-examined the relationship between leadership style and strategic alignment by controlling the effect of respondent's age on CIO's leadership style alone. In all cases for the primary hypothesis (H1) and subquestions' hypotheses (H1 to H9), the results for the semi-partial correlations (two-tailed) were identical to the results for the initial bivariate correlations. Therefore, the study's findings showed that the respondents' age had no statistically significant influence on the association between CIO's leadership style and strategic alignment.

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Summary

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This chapter presented the analytical steps that yielded the study's findings and results. After the preliminary examination of the survey data, correlational statistical analysis tested the study's hypothesized relationships. Then the chapter included brief summaries of the results, including those from the post-hoc analysis. On the one hand, statistically significant evidence supported some of the hypothesized relationships; however, evidence was insufficient to accept or reject all of the hypothesized relationships. The final chapter of this dissertation study provides a detailed interpretation of the implications of the results and the study's limitations, followed by recommendations for further research.

CHAPTER 5. DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

The goal of this study was to answer the research questions through statistical analyses on the sample data to validate the hypothesized relationships. Whereas the results for some of the relationships were statistically significant and had enough power to support or refute earlier claims, others were not. This chapter has two primary objectives: first, to assess how well the research methodology, the analyses, and the results addressed the research problem that precipitated the study. The second objective is to present recommendations for future studies. To achieve these objectives, the chapter contains the following six sections: (a) summary of the results, (b) discussion of the results, (c) conclusions based on the results, (d) limitations, (e) implications for practice, and (f) recommendations for future research.

Summary of the Results

Organizations stay competitive in challenging and dynamic markets by choosing and applying the right mix of strategy, technology, structure, and process (Beck & Wiersema, 2013; Gnjidic, 2014). More than three decades ago, Miles et al. (1978) reiterated that "organizations are limited in their choices of adaptive behavior to those which top management believes will allow the effective direction and control of human resources" (p. 558). Modern strategic management scholars supported this view and argued that both leadership and management are critical to every organization. Leaders manage key assets by making trade-offs among multiple choices (Heracleous & Werres, 2016; Snow & Ketchen, 2014). Furthermore, as businesses have responded to advanced

interconnections among products, processes, and services, the strategic role of IS has emerged. This need to master digital applications calls for a CIO who can monitor investments in IS/IT and take necessary actions to address limitations with traditional approaches.

Along these lines, experts have studied the factors that contribute to the CIO's effectiveness. In particular, they have examined influence relationships derived from the CIO's personal and demographic characteristics (Chun & Mooney, 2009; Li & Tan, 2013), the CIO's position of authority (Banker et al., 2011), and TMT expectations from the CIO (Benlian & Haffke, 2016; Gerth & Peppard, 2016; Mantere, 2013). Whereas researchers (e.g., Shao et al., 2012) have hinted at the potential influence of the CIO's leadership style on business outcomes, before this dissertation research, no empirical evidence had established what (if any) relationships exist between CIO's leadership style and strategic alignment.

Against this backdrop, this nonexperimental correlational study's aim was to examine relationships between leadership styles and strategic alignment while accounting for the moderating effects of business strategy types. At a high (systemic) level, the findings indicated a statistically significant relationship between each of three leadership styles commonly adopted by CIOs (transactional, transformational, and mixed) and strategic alignment. However, the moderating effects of business strategy type on the relationship yielded mixed but telling results. At defender organizations, transformational leadership style had the strongest association with strategic alignment.

Although this result seemed promising, concerns that the confidence interval crossed zero undermined its validity. In particular, transformational leadership had a

strong negative association with strategic alignment; the implication was that for defenders, the CIO's use of the transformational leadership style negatively impacted strategic alignment. For prospectors, transactional leadership had the strongest association with strategic alignment. Similar to defenders, this result provided only partial support for the association due to concerns with confidence interval; however, it revealed that for prospectors, out of the three leadership styles, transactional leadership had the most influence on strategic alignment. Last, for analyzers, as for prospectors, transactional leadership style had the strongest association with strategic alignment; hence, a CIO who uses transactional leadership style is better suited for this organization type.

These results are significant. Senior executives could use them to determine which leadership style they require from their CIO. For example, when unprecedented pressure from market turbulence causes organizations to cut costs, executives turn to their CIO (and IS/IT) for assistance (Kohli & Johnson, 2011). During such turbulent times, organizations adjust their strategic behavior to adapt to prevailing circumstances (Miles et al., 1978; Shao et al., 2012). Armed with insights from this study's findings, executives could engage a CIO whose leadership style facilitates desired business and IS objectives.

Organizations might also use the study's findings when planning for CIO succession. Recently, scholars (e.g., Gerth & Peppard, 2016; Krotov, 2015) have examined the challenges leaders face as they transition into a CIO role. Depending on the expectations of other executives, such transition could demand actions that range from continuing the good works of a predecessor to an aggressive mandate for realignment or complete change. Whereas researchers have attempted to examine how the factors

influence IS/IT effectiveness, they did not account for the potential effects of leaders'

behaviors. By filling this research gap, the results from this study offer valuable insights

to the existing body of knowledge from which organizations can draw for CIO succession

planning, training, and selection.

Recently, the research community has hinted at the potential association between

IT leadership and strategic alignment and called on researchers to investigate further

(Chae et al., 2014). The theoretical model developed by Shao et al. (2012) included three

propositions: (a) in defender businesses, leaders need a transactional CIO; (b) in

prospector businesses, leaders need a transformational CIO; and (c) in analyzer

businesses, leaders need a CIO who adopts a mixed leadership style (see also Li & Tan,

2013). This test of Shao et al.'s (2012) propositions has enriched the existing theoretical

model with new knowledge backed by empirical evidence.

Discussion of the Results

As discussed in the previous chapters, the following research question (RQ) and

its corresponding pair of null (H_0) and alternate (H_A) hypotheses represented a high-level

inquiry:

RQ: To what extent, if any, does CIO leadership style correlate with strategic

alignment when moderated by business strategy?

H_0: There is no statistically significant correlation between CIO leadership style

and strategic alignment when moderated by business strategy.

H_A: There is a statistically significant correlation between CIO leadership style

and strategic alignment when moderated by business strategy.

The results, which found a strong significant positive correlation between each of three leadership styles and strategic alignment, required rejection of the null hypothesis and consequently demonstrated support for the alternate hypothesis. This finding lent initial support to both Bennett's (2009) conviction and Shao et al.'s (2012) suggestion about the potential relationship between leadership style and strategic alignment. At a detailed level, the nine subquestions (SQ1 to SQ9) and their corresponding hypotheses (H1 to H9) provided further clarity to the central research question (RQ). As Table 13 (in Chapter 4) shows, the outcomes from the second round of statistical tests produced mixed results. Figure 16 below shows the revised research model for the study, with boldface emphasis on the supported relationships and de-emphasis on the unsupported hypothesized relationships.
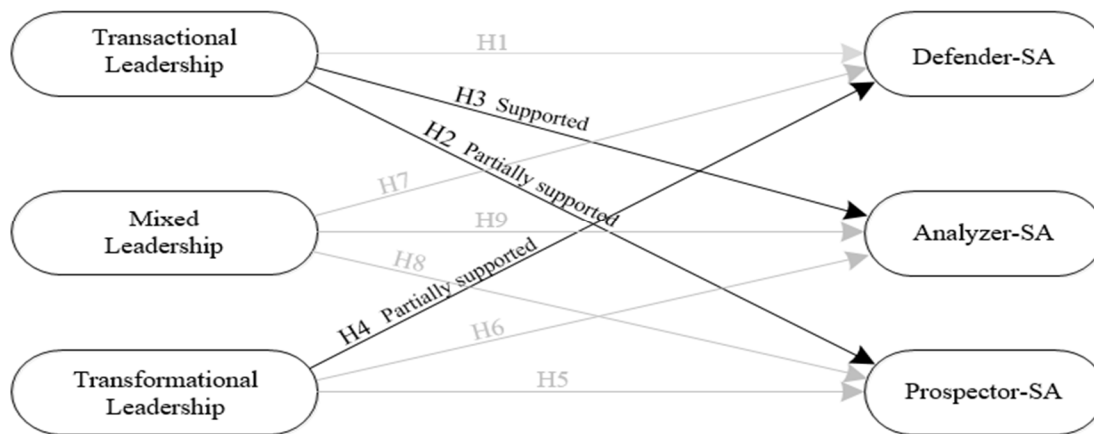
Figure 16. Revised research model for the study. In this figure, "Not supported" hypothesized relationships are grayed out, but "Supported" and "Partially supported" hypothesized relationships are emphasized.

Of particular interest were those cases whose results seemed promising. First, for analyzers, Shao et al. (2012) suggested that because such organizations pursue dual goals of stability and growth, a CIO who combines both transactional and transformational

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leadership styles (i.e., mixed leadership) would be best suited. However, this study's results did not support Shao et al.'s (2012) proposition; instead, it showed that transactional CIOs were more appropriate for analyzer organizations. It is possible that the strong correlation between transactional and transformational leadership styles (as discussed later in this chapter), which means that these two leadership styles share pertinent similarities that complement each other, may have influenced the outcome. This proposition aligns with the argument that the contingent rewards component of transactional leadership provides needed motivation for organizational stability and growth (cf. Hickman, 2010).

Next, unlike analyzers, the results for prospectors and defenders were only partially supported, and hence, inconclusive. Again, in comparison to Shao et al. (2012), who proposed that the defenders' quest for stability and efficiency demands transactional CIOs, this study's result was inconclusive. Though only partially supported, it demonstrated that transformational CIOs disrupted strategic alignment due to a negative association and therefore might not be suited for defender organizations. Last, whereas Shao et al. (2012) believed that prospectors' quest for flexibility and growth demanded transformational CIOs, this study's results partially demonstrated a preference for transactional CIOs at prospector organizations.

Composition of Organization Types

A fundamental premise of Miles et al.'s (1978) typology is that different organization types exist within a single industry. Derivation of business strategy types in this study relied on the ideal profile approach first developed by Sabherwal and Chan (2001) and later recommended by several modern scholars, including Baker et al. (2011)

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and Chan et al. (2006). The breakdown showed that the sample contained more analyzers (55.9%) than either defenders (13.8%) or prospectors (30.3%). This result was consistent with those of related studies (e.g., Chan et al., 2006; Sabherwal & Chan, 2001) and showed a higher proportion of analyzers than the other two business strategy types among for-profit organizations in different industries. However, such findings contradicted the results of Blackmore and Keith (2013) and Li and Tan (2013), which indicated fewer analyzers than defenders and prospectors.

Nonetheless, the presence of more analyzers meant that more of the sample organizations maintained a stable domain while exploiting new products/markets simultaneously. One possible explanation for the inconsistency in the proportion of analyzers to defenders and prospectors could be the timing of this study, which took place during booming economic times when most of the organizations had fully recovered from the devastating effects of the last recession. Some results contradicted those of previous studies (Li & Tan, 2013), perhaps because more organizations were actively defending their current markets at the time of those previous studies, that is, closer to (or during) the last economic recession (Kohli & Johnson, 2011; Luftman & Ben-Zvi, 2011).

Composition of Leadership Styles

More CIOs at organizations that employ an analyzer business strategy preferred a mixed leadership style (56.79%) to either transactional leadership style (34.57%) or transformational leadership style (8.64%). This result supported Shao et al.'s (2012) suggestion that analyzers pose the most demanding conditions for CIOs because CIOs in such organizations take on the dual roles of visionaries and executors. As a result, some

scholars believe that analyzers benefit more from CIOs who preferred a mixed leadership style. For defenders, results indicated that more CIOs preferred transactional leadership (55%) to other leadership styles. Similar to analyzers, this result aligned with Shao et al.'s (2012) suggestion that transactional CIOs are better suited to defenders. In the case of prospectors, the result of this study showed that CIOs preferred transactional leadership (54.55%) to other leadership styles. Contrary to results for both analyzers and defenders, which aligned with Shao et al.'s (2012) propositions, this result contradicted Shao et al.'s suggestion that IS/IT functions at prospectors could benefit more from transformational CIOs.

In the case of prospector organizations, a possible explanation for the contradiction with Shao et al.'s (2012) proposition could be that organizations often use contingency rewards—a form of transactional leadership—to drive innovation, seek out new opportunities, and consequently gain a competitive edge (Hickman, 2010). Another explanation could be that CIOs in the prospector organizations considered their direct reports as lacking valuable experience for organizational transformation; hence, they opted for transactional leadership, which scholars have shown to be better suited for such situations when compared to transformational leadership (cf. Tyssen, Wald, & Spieth, 2014).

Correlation Between Leadership Styles

Several researchers found the MLQ to have high intercorrelation of above 0.7 between transformational and transactional leadership (Antonakis & House, 2014; Kelloway et al., 2012; Park et al., 2011). Some researchers (e.g., Shao et al., 2012) attributed this high correlation to the fact that both leadership styles are equally dominant

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in some individuals. However, other scholars (e.g., Sahin, Gurbuz, & Sesen, 2017) cited

the high intercorrelation as evidence that the two leadership styles may not measure

different unique factors. In recent times, some critics of the MLQ have argued in favor of

the interrelation, noting that it means both leadership styles are mutually reinforcing

(Hetland et al., 2011). For example, some findings showed that leaders who used

contingent rewards, a form of transactional leadership, improved followers' intellectual

stimulation, which is a component of transformational leadership (Hickman, 2010;

Wolfram & Gratton, 2014).

Similarly, results in this study indicated a significantly high positive correlation

between transactional and transformational leadership styles ($r = .83$ [.74, .89], $p < .001$).

Antonakis et al. (2003) cautioned that "pooling data from raters originating from different

contexts may destabilize the factor structure of a leadership survey instrument because of

systematic differences in how leadership was demonstrated and/or observed" (p. 267).

Despite soliciting responses from raters at multiple hierarchical levels (mid-level IT

managers) spread across different industries, this study's result on the intercorrelation

between transactional and transformational leadership styles was consistent with those

from earlier studies. As evidenced in related studies (e.g., Sharp et al., 2013), this

consistency may have been due to the elimination of industry effects through the

standardization of survey data across industries.

Effect of Gender

This study's results revealed that 12.6% of male CIOs and 8.8% of female CIOs

were transformational, indicating that more male than female CIOs preferred

transformational leadership. Conversely, the results showed that 50% of female CIOs and

41.4% of male CIOs were transactional, which indicated a higher preference for transactional leadership among female CIOs. This result contradicted the findings from several studies (e.g., Eagly, Johannesen-Schmidt, & van Engen, 2003; Sahin et al., 2017) and indicated that female leaders were more transactional than their male counterparts. As evidence from multiple sources have shown that female leaders favor the use of contingency reward, a component of transactional leadership, it is possible that the female CIOs at the sampled organizations used such behaviors prominently, which might explain why more of the female CIOs preferred transactional leadership. Furthermore, judging from the greater number of male CIOs (76.6%) than female CIOs (23.4%) in the sample, one could safely conclude that the CIO profession is a male-dominated discipline. Therefore, it is no surprise that numerous programs exist to attract more females into the professional disciplines of engineering, computer science, and leadership (Young, 2011).

Some researchers (e.g., Antonakis et al., 2003; Brandt & Laiho, 2013; Young, 2011; Bono et al., 2012) found that followers' gender (or even personality) influenced their perception of leaders' behaviors. However, the results of this study showed only partial support for such influence relationships. On one occasion, in the case of analyzers, respondents' gender influenced their perception of CIO's mixed leadership style, which in turn strengthened the positive relationship between leadership style and strategic alignment. This discrepancy might have resulted partly because of the uneven distribution of the proportion of SMEs (85.71%) and large enterprises (14.29%) in the sample. Therefore, this study's findings aligned more with findings from studies such as Manning

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(2002), Zhu et al. (2011), and Brown and Reilly (2008), wherein the researchers found no significant difference due to the effect of leaders' gender.

Effect of Organization Size

Chan et al. (2006) found that organization size influences strategic alignment in business firms due to its influence on IT governance. The researchers and others (e.g., Fink, 2011; Gerow et al., 2015) argued that such influence was more dominant in large-sized firms than SMEs because large organizations are capable of directing significant resources towards achieving superior IT governance. In contrast, this study's results showed that controlling for the effects of organization size did not vary the relationship between leadership style and strategic alignment. These results demonstrated that both SMEs and large organizations could achieve and sustain strategic alignment, as indicated by previous studies of strategic alignment at SMEs alone (e.g., Cataldo & McQueen, 2014; Cataldo et al., 2012). Also, researchers observed that SMEs typically structured their organizations around functions (e.g., accounts, marketing) and they relied on centralized structures (cf. Lofving, Safsten, & Winroth, 2016). It is possible that these attributes offered CIOs at the SMEs an opportunity to exercise complete control over IS practices organization-wide and to maintain consistency across business functions, and hence, to focus their leadership actions on promoting strategic alignment.

Effect of Raters' Age

Some researchers hinted that raters' age could influence their perception of strategic alignment. For example, Belfo and Sousa (2013) concluded that older respondents considered their organizations to have superior alignment maturity than younger respondents. Further, Bono et al. (2012) argued that "disagreements among

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raters about leaders' behaviors are not due solely to random error" (p. 132). Other

researchers asserted that raters' personalities (e.g., age) influenced their perception of

leaders' behavior (Li & Tan, 2013). This study's results showed that controlling for

raters' age did not significantly alter the relationships between leadership style and

strategic alignment, a result that contradicted earlier beliefs about age's influence on the

relationship. This contradiction could have resulted because unlike Belfo and Sousa

(2013), who focused on the process of strategy (i.e., alignment maturity), both Sabherwal

and Chan (2001) and the researcher in this study focused on the content of strategy (i.e.,

on achieving strategic alignment).

Conclusions Based on the Results

In this study, the primary objective of the researcher was to contribute valuable

knowledge to the field of strategic management by empirically validating the

relationships between leadership styles and strategic alignment in organizations with

different business strategy types. The evidence presented in the literature review showed

that researchers had not validated such relationships before. Indeed, this study's findings

lent support to the importance of accounting for leaders' behaviors in the achievement of

organizational outcomes, as other researchers such as Bennett (2009) and Chae et al.

(2014) had suggested. In particular, the findings revealed that a CIO's leadership style

influences the achievement and sustainment of strategic alignment (cf. Shao et al., 2012).

In other words, the leadership behaviors adopted by CIOs have profound consequences

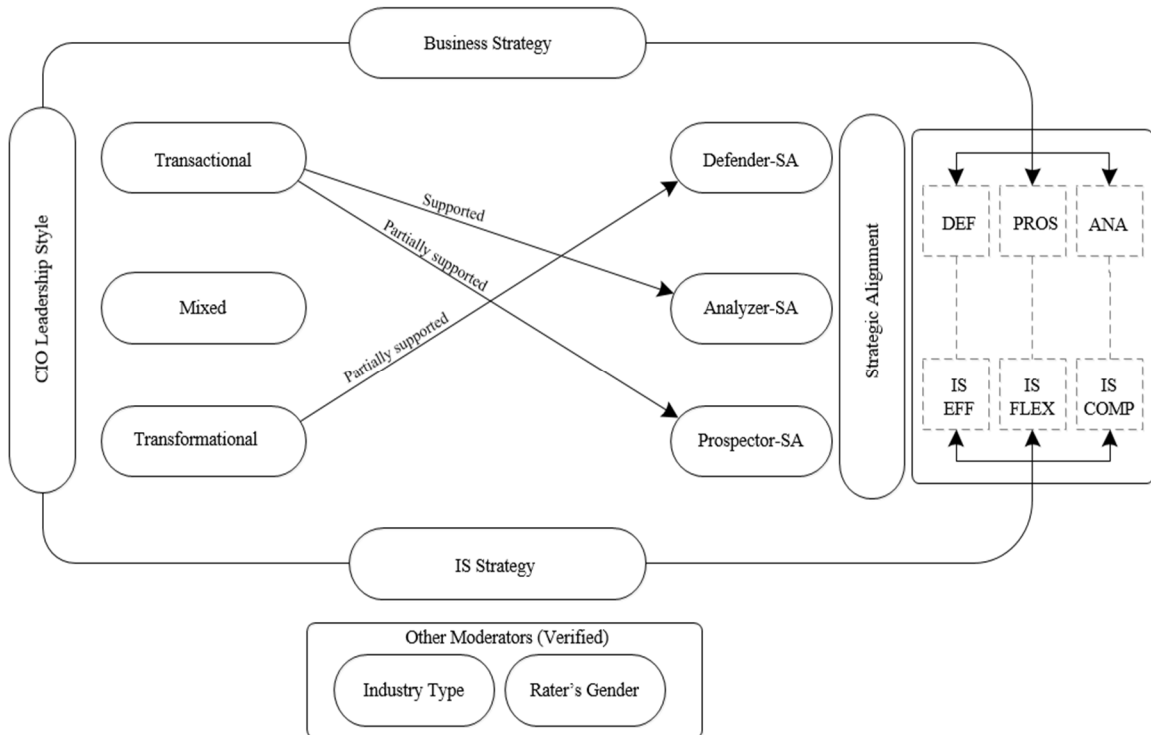on the contribution of IS/IT to the business outcomes through strategic alignment.

Figure 17. Validated theoretical model for the study.

Chapter 2 included a description of the theoretical model for this study (Figure 3).

Information in the literature review motivated a revision of the model to account for other

a priori factors that could influence the relationships under investigation (see Figure 9).

The final revision of the theoretical model (Figure 17) incorporates the conclusions from

this study's results. The revised model identifies only the verified significant associations

between CIO's leadership style and strategic alignment. Furthermore, results

demonstrated, like Chan et al.'s (2006), that both industry and business strategy types

influence strategic alignment. Also, in terms of leadership style, the findings of this study

indicated that a rater's gender might influence his or her perception of a leader's

behavior. This verification of the associations between leadership style and strategic

alignment enrich the strategic alignment ecosystem with an important antecedent that

other researchers had missed. Therefore, this new information has contributed valuable additional knowledge to the foundational theories on strategic alignment that scholars and practitioners might find useful.

Limitations

This study's sample of 145 participants was larger than either of the recommended minimum sizes of 109 or 134. Also, it fell within the range of sample sizes researchers used in related studies (e.g., Gerow et al., 2015; Nfuka & Rusu, 2011; Simonsson et al., 2010). However, after the division of samples by strategy type and leadership style, some groups had small samples. In line with this concern, scholars have cautioned that even strong correlations might turn out to be insignificant when working with small samples. Furthermore, because the chi-square statistic is sensitive to small samples, the sample size (count) for each case (cell) should be five or greater (Argyrous, 2011). In this study, the testing of subquestions' hypotheses (H1 to H9) used the split samples, some of which had small sizes. For example, the hypothesis testing for subquestions SQ4 and SQ7 used samples that had four and five cases, which were less than and equal to the recommended minimum size for chi-square statistics tests, respectively. Hence, it is possible that the study's results, especially those that produced inconclusive evidence, were biased by small samples.

Oh and Pinsonneault (2007) advised that "research on strategic alignment that uses difference scores to compute the degree of alignment should also use other methods to validate results" (p. 258). This study included computation of alignment using profile deviation method; however, it did not include follow up with respondents or the CIOs to validate the results and conclusions. Therefore, a mixed methods study design wherein a

researcher follows up with participants after initial data analysis to validate findings might provide additional evidence to support or refute the study's results (Dixon & Hart, 2010; Leelien, 2010).

This study relied on Henderson and Venkatraman's (1993) SAM and Miles et al.'s (1978) typology, which other scholars have tested extensively (Cuenca et al., 2011; Chan & Reich, 2011). Like Gerow et al. (2015) and other scholars, this study incorporated strategic alignment conceptualized as a dynamic, not static, construct. Since Venkatraman (1989b) first articulated the concept of fit in strategy research, several researchers have used the different fit models—profile deviation, mediation, moderation, gestalts, matching, and covariation. In this study, the researcher followed in the footsteps of scholars that used the profile deviation approach (e.g., Baker et al., 2011; Chan & Reich, 2007b; Taskin et al., 2014). Whereas most researchers preferred the profile deviation method to the other fit approaches, this study did not include validating the results using a different fit model. Therefore, further examination of the same constructs using one of the other fit models or a combination of multiple fit models might provide valuable insights into the relationships.

Similar to precautions taken by Young (2011) and others (e.g., Zhu et al., 2011), this study's procedures minimized self-reporter bias by preventing CIOs from assessing themselves. Also, as in studies by Radaelli and Sitton-Kent (2016) and Vaara and Whittington (2012), the data was from surveys of mid-level IT managers and served to assess CIO behavior. However, a more rounded assessment of a CIO's behavior might rely on a 360-degree feedback to assess each CIO's leadership style. Using this approach, a researcher might ask for each CIO's direct reports, his or her immediate bosses, and the

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CIO to provide feedback on observed CIO behaviors. When combined with a longitudinal study design, some researchers have endorsed this approach as effective (Day et al., 2014).

Furthermore, although survey and questionnaire tools can elicit respondents' perceptions of strategic alignment in an organization (Ahuja, 2012), it is possible that these responses may vary by respondents in different business units in the same organization. As mentioned earlier, a discrepancy in the breakdown of business strategy types across studies might have resulted from differences in prevailing economic circumstances at the time of each study. In other words, the cross-sectional nature of this study might have limited its results; therefore, as Gnjidic (2014) suggested, a longitudinal study conducted across multiple industries and spanning multiple economic periods might provide valuable additional insights/explanations that support or refute this study's results.

Since Shao et al. (2012) first developed their exploratory theory formulation study, no researcher has validated or used the ideal profile for leadership style before this study. As one of the first to use the ideal profile approach to assess a leader's style, the researcher adopted a technique that had not undergone sufficient scrutiny by the research community. Similar to the use of profile deviation in assessing business strategy and strategic alignment, which researchers have thoroughly tested, this technique of assessing a leader's style holds promise, but it needs further validation to confirm its reliability as a leadership style assessment approach.

The last limitation of the study relates to concerns with language differences among published studies. Like researchers involved in related studies (e.g., Delbridge &

Fiss, 2013; White et al., 2016), the researcher limited the sources in the literature review to English publications. Despite skimming through English translations of a few related non-English publications, it is possible that the researcher missed accounting for other ideas from studies published in non-English peer-reviewed journals.

Implications for Practice

First, this study's findings showed that top executives need CIOs' leadership to achieve and sustain strategic alignment. Furthermore, regardless of a CIO's age and gender, such leaders play a critical role in ensuring the optimization of IS/IT investments for the pursuit of business goals. Second, the leadership style (or behavior) of a CIO could determine whether top executives succeed or fail in their quest to achieve and sustain strategic alignment. In particular, to be effective, senior executives of an organization must carefully select a CIO whose leadership style matches their strategic vision. In line with this thinking, at a minimum, defenders should avoid a CIO who shows only dominant transformational leadership behaviors, and both prospectors and analyzers should consider a CIO who, at a minimum, exhibits dominant transactional leadership behaviors. Also, partial evidence indicated that depending on the CIO's gender, analyzers might also benefit from a CIO who freely combines both transactional and transformational leadership behaviors (i.e., mixed leadership).

Third, results of this study confirmed leadership style as an antecedent of strategic alignment that neither scholars nor practitioners had validated before. Therefore, to fully exploit the benefits of strategic alignment, businesses must account for leaders' behaviors as they strive to address management and leadership concerns. For instance, an organization might improve leaders' effectiveness by incorporating transactional,

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transformational, or both leadership components from the MLQ that matches its chosen business strategy in leadership training programs and succession plans (cf. Sahin et al., 2017). Also, as Raelin (2016) noted, such actions would ensure that leaders such as CIOs are well-informed about the health of their relationships with followers and the consequences they could have on organizational performance.

Last, this study focused on understanding how other top executives, separate from the CEO, influence business outcomes, as previous scholars recommended. For example, Hickman (2010) argued that as regulatory requirements such as the Sarbanes-Oxley mandate both the CEO and chief financial officer to certify accounting statements, understanding other top executives' qualities is critical to business success. Likewise, a CIO's involvement at certifying an organization's posture on cyber security readiness and critical information systems' adequacy makes him or her an invaluable leader (Coltman et al., 2015). Along these lines, this study's results buttressed the importance of CIO's leadership to strategic alignment and provided a significant step forward in strategic management practice.

Recommendations for Further Research

As one of the first studies to empirically examine relationships between leadership style and strategic alignment in different organization types, this research derived from advice from scholars. For example, Derue et al. (2011) advised that "to determine the relative importance of predictors, researchers often examine regression coefficients or zero-order correlation with the criteria" (p. 27). Based on this advice, the researcher adopted linear models for this study's statistical analysis, and in doing so, assumed a linear relationship between each pair of constructs under investigation.

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However, recent evidence suggested that the assumption of linear relationship might not apply in all cases (cf. Cho, Diaz, & Chiaburu, 2017). Therefore, researchers interested in further studies could examine the relationships between similar constructs using nonlinear models or more sophisticated statistical techniques such as structural equation modeling (SEM; see also Gonzalez-Benito & Suarez-Gonzalez, 2010; Hetland et al., 2011; Williams et al., 2009).

According to Simonsson et al. (2010), "people knowledgeable about IT were believed to better understand the causality between IT service delivery and business stakeholder satisfaction" (p. 17). In line with this posture and other suggestions from scholars such as Appelbaum et al. (2015), the researcher relied on the perceptions of mid-level IT managers to arrive at this study's conclusions. Furthermore, the sampling of a different organization group, outside of the top management team, provided an opportunity to observe the study's constructs from a different perspective. This approach also aligned with suggestions from scholars such as Antonakis et al. (2003) and Sekaran and Bougie (2013), who recommended that researchers consider using triangulation when examining leadership constructs because all survey measures of leadership have inherent limitations. Hence, in furtherance of the research in strategic alignment, future researchers might determine whether the results obtained through other perspectives such as matched-pair CEO-CIO responses might yield similar results.

This study examined each organization's strategic orientation using Miles et al.'s (1978) business strategy classification scheme. This strategic typology is the dominant approach used for studying competitive strategy because it represents a superior holistic perspective of strategy, as compared to other approaches (Lin et al., 2014; Sabherwal &

Chan, 2001). In spite of its benefits, scholars have criticized Miles et al.'s (1978) typology for its relatively static nature and its deficiency at accurately predicting organizational transformation from one strategy type to another (Gnjidic, 2014). Therefore, as Rashidirad et al. (2014) also suggested, researchers involved in future studies might gain valuable additional insights on the moderating effects of business strategy by using other competitive strategy frameworks such as the example described by Porter (1991).

Both Banker et al. (2011) and Carter et al. (2011) found differences in senior executives' expectations for their CIOs between strategically oriented and operationally oriented IS/IT functions. In particular, in strategically oriented IS/IT functions, the CIO was a member of the senior executive team and focused on the use of IS to gain and sustain a competitive edge. In this study, the assumption was that the organizations had strategically oriented IS/IT practice; however, the study did not include means to validate this assumption. As a result, it is possible that some organizations in the sample may have violated this assumption. Therefore, researchers exploring further studies with similar constructs should determine whether the role of IS/IT in an organization influenced this study's results.

Chapter 1 established the ongoing debate regarding whether strategy decides managers or managers decide strategy (see also Li & Tan, 2013), and understanding this topic is important to determining causality. Hence, researchers involved in further studies could investigate the causal relationships between this study's constructs. Furthermore, the literature review revealed that recent trends in leadership had resulted in new forms of leadership such as e-leadership and pluralized leadership (see Chapter 2). The MLQ

instrument, which modern scholars have frequently used for leadership studies, was developed before the advent of these new leadership forms, and it is not clear how the MLQ addresses these new leadership trends (Gerth & Peppard, 2016; Li et al., 2016; Puni & Bosco, 2016; Vaara & Whittington, 2012). Therefore, researchers pursuing further studies on related topics could assess the influence of the modern leadership trends on the study's outcomes.

Chapter 3 described the design notation for the study as X–O. Although this notation represented a basic research approach, previous scholarship confirmed that it was adequate for examining the study's constructs. However, as Trochim and Donnelly (2006) noted, researchers might benefit from expanding such basic design across time, observations, and participants. For example, researchers involved in future studies could expand this study's observation to include multiple groups comprised of participants from multiple business units within each organization. In so doing, they might uncover new evidence to support or refute this study's results.

Conclusion

A reasonable consensus exists among strategic management scholars and practitioners that alignment between business and IS/IT functions results in superior business performance. Moreover, this conviction prompted some researchers to investigate alignment's antecedents and its nomological network. To this end, scholars called for a closer examination of the most senior IT leader (CIO) to understand how his or her actions might influence business outcomes (Chae et al., 2014). In response, researchers (e.g., Banker et al., 2011; Li & Tan, 2013) examined how a CIO's personality and position of authority influences his or her effectiveness. Whereas previous

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researchers have made meaningful contributions towards understanding a CIO's influence, before this study, little evidence supported or refuted the proposition that a CIO's leadership style influenced strategic alignment.

This study focused on theory testing and verified empirically whether the leadership style of a CIO influenced strategic alignment in organizations with different business strategy types. Despite this study's limitations, the results supported earlier suggestions by researchers such as Shao et al. (2012), which indicated that all CIOs are not equally effective for an organization. Instead, to achieve desired outcomes, an organization that pursues a specific business strategy needs a CIO whose leadership style facilitates strategic alignment between business and IS/IT functions. In other words, based on the findings of this study, a leader's behavior does influence strategic alignment when considered within the context of an organization's strategic posture.

In spite of these important revelations and the progress made in this study, some of the results, especially those from tests performed to answer the subquestions, were inconclusive, which was perhaps due to one or more of the limitations discussed earlier. Hence, readers must exercise caution when generalizing this study's results. Nevertheless, this study revealed additional knowledge pertinent to strategic management research that should stimulate new interests among researchers in the field.

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STATEMENT OF ORIGINAL WORK

Academic Honesty Policy

Capella University's Academic Honesty Policy (3.01.01) holds learners accountable for the integrity of work they submit, which includes but is not limited to discussion postings, assignments, comprehensive exams, and the dissertation or capstone project.

Established in the Policy are the expectations for original work, rationale for the policy, definition of terms that pertain to academic honesty and original work, and disciplinary consequences of academic dishonesty. Also stated in the Policy is the expectation that learners will follow APA rules for citing another person's ideas or works.

The following standards for original work and definition of *plagiarism* are discussed in the Policy:

> Learners are expected to be the sole authors of their work and to acknowledge the authorship of others' work through proper citation and reference. Use of another person's ideas, including another learner's, without proper reference or citation constitutes plagiarism and academic dishonesty and is prohibited conduct. (p. 1)

> Plagiarism is one example of academic dishonesty. Plagiarism is presenting someone else's ideas or work as your own. Plagiarism also includes copying verbatim or rephrasing ideas without properly acknowledging the source by author, date, and publication medium. (p. 2)

Capella University's Research Misconduct Policy (3.03.06) holds learners accountable for research integrity. What constitutes research misconduct is discussed in the Policy:

> Research misconduct includes but is not limited to falsification, fabrication, plagiarism, misappropriation, or other practices that seriously deviate from those that are commonly accepted within the academic community for proposing, conducting, or reviewing research, or in reporting research results. (p. 1)

Learners failing to abide by these policies are subject to consequences, including but not limited to dismissal or revocation of the degree.

Statement of Original Work and Signature

I have read, understood, and abided by Capella University's Academic Honesty Policy (3.01.01) and Research Misconduct Policy (3.03.06), including Policy Statements, Rationale, and Definitions.

I attest that this dissertation or capstone project is my own work. Where I have used the ideas or words of others, I have paraphrased, summarized, or used direct quotes following the guidelines set forth in the APA *Publication Manual*.

Learner name and date	Clifford O. Berepiki	July 17, 2017

APPENDIX A. FOUNDATIONAL STUDIES FROM LITERATURE REVIEW

Table A1. *Key Characteristics and Findings of the Most Influencing Foundational Studies from Literature*

| Study | Concepts Related to Study | | |
	Constructs	Theoretical Foundation	Key Findings/ Recommendations
Sabberwal & Chan (2001) Chan et al. (2006)	Strategic orientation Strategic alignment Alignment antecedents Industry & firm type Organizational performance	SAM Strategic typology STROBE	Strategic alignment has a significant influence on business performance. Furthermore, certain factors (e.g., organization size), antecedents (e.g., shared domain knowledge), and strategic orientation (e.g., prospector, analyzer) influence strategic alignment outcomes.
Johnson & Lederer (2010)	Strategic alignment Alignment antecedents	STROBE SAM	A shared understanding of the role of IT between CIO and CEO positively influence strategic alignment outcomes, except on one occasion where the affected organizations showed greater tolerance for risk.
Wu et al. (2015)	Strategic alignment IT governance Organizational performance	SAM RBV	The positive influence of IT governance on organizational performance is fully mediated by strategic alignment.
Gerow et al. (2014) Gerow et al. (2015) Gerow et al. (2016)	Alignment antecedents Alignment types Alignment paradox Organizational performance	SAM	Quashed earlier findings on alignment paradox. Moderator variables (e.g., instrument type), responder type (e.g., single-individual versus matched-pair), and alignment type under investigation (e.g., intellectual, cross-domain) influence relationships between strategic alignment and organizational performance.
Li &Tan (2013) Carter et al. (2011)	Leader's characteristics Strategic alignment Strategic orientation	Leader traits/skills Strategic typology SAM	Innate leadership traits (e.g., personality) have a greater influence on organizational outcomes than acquired leadership skills (e.g., education, job experience). Whereas strategically minded CIOs' focus on organizational growth, adaptability, and innovation, their traditional counterparts focus on cutting cost through stability, reliability, and control.

Table A1. *Key Characteristics and Findings of the Most Influencing Foundational Studies from Literature* (cont.)

Study	Concepts Related to Study		
	Constructs	Theoretical Foundation	Key Findings/ Recommendations
Luftman et al. (2015) Baker et al. (2011)	Strategic alignment Alignment antecedents Organizational performance	DCF SAM SAMM	IT investments do not directly influence organizational performance, instead, the significant influence relationship between them is mediated by the quality of the relationship between business and IT. In addition, these studies distinguished between end-state and process perspectives of alignment.
Banker et al. (2011)	Social alignment Leader effectiveness	Upper-echelon	The role of a CIO within an organization (e.g., strategist, tactician) should determine which member of the TMT that CIO reports to, instead of the power-centric reporting structure advocated in the early days of CIO formation.
Bennet (2009)	Leadership styles Followers' performance	FRL model	The leadership style of IT managers significantly influences IT employees' job satisfaction, and their perception of IT managers' effectiveness. Also, employees preferred transformational leadership to other forms of leadership.
Shao et al. (2012)	Strategic alignment Leadership style Strategic orientation	SAM FRL model Strategic typology Upper-echelon	The researchers put forward propositions signalling potential influence relationships between CIO leadership style, strategic alignment, and business strategy. Called for empirical examination and validation of their theoretical propositions.

Note. DCF = Dynamic Capability Framework, SAM = Strategic Alignment Model, SAMM = Strategic Alignment Maturity Model, FRL = Full Range Leadership, STROBE = Strategic Orientation of Business Enterprises. The origins of the theoretical foundations are SAMM (Luftman, 2000), SAM (Henderson & Venkatraman, 1993), FRL model (Avolio & Bass, 2004), Upper-echelon (Hambrick & Mason, 1984), STROBE (Venkatraman, 1989), Strategic typology (Miles et al., 1978), DCF (Teece et al., 1997), and RBV (Barney, 1991).

APPENDIX B. SURVEY DEMOGRAPHIC QUESTIONS

Please state your sex. *

◯   Female

◯   Male

What is your age? *

◯   21 - 29

◯   30 - 39

◯   40 - 49

◯   50 - 59

◯   60 - 65

Please state your position. *

◯   Supervisor/Team Lead

◯   Manager

◯   Director

◯   CIO/CTO

◯   CFO/Treasurer

◯   VP/SVP/EVP

◯   Chairman

◯   President/CEO

Sex of the most senior IT executive? *

◯   Female

◯   Male

What is your organization's size? *

◯   1 - 49 employee

◯   50 - 99 employees

◯   100 - 199 employees

◯   200 - 499 employees

◯   500 - 999 employees

◯   1000 - 4999 employees

◯   5000 - 9999 employees

◯   10000 or more employees

Industry segment of your organization. *

-- Select --

APPENDIX C. SURVEY BUSINESS AND IS STRATEGIES QUESTIONS

From "Alignment between business and IS strategies: A study of prospectors, analyzers, and defenders" by R. Sabherwal and C. Chan, 2001, *Information Systems Research, 12*, p. 29-30. Copyright 2001 by the Information Systems Research. Adapted with permission.

To what extent do you agree or disagree with the following about your organization:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Business Strategy - Defensiveness					
We develop strong relationships with our suppliers *	○	○	○	○	○
We develop strong relationships with our customers *	○	○	○	○	○
We optimize coordination across our departments and/or product lines *	○	○	○	○	○
There is a constant drive to improve operating efficiency *	○	○	○	○	○
Business Strategy - Analysis					
We tend to be number oriented and analytical in our operations *	○	○	○	○	○
We require detailed, factual information to support our day-to-day decision making *	○	○	○	○	○
We develop comprehensive analyses of each business opportunity or challenge we face *	○	○	○	○	○
Business Strategy - Risk Aversion					
Our business decisions generally follow tried and true paths *	○	○	○	○	○
We adopt a rather conservative view when making major decisions *	○	○	○	○	○
In general, our mode of operations is less risky than that of our competitors *	○	○	○	○	○
Business Strategy - Proactiveness					
We generally increase capacity (i.e., prepare to handle a greater volume of business) before our competitors do the same *	○	○	○	○	○
We are usually the first ones to introduce various products and/or services in the market *	○	○	○	○	○
We adopt innovations early *	○	○	○	○	○
Business Strategy - Futurity					
The performance measures reviewed by the senior management team emphasize our long-term business effectiveness *	○	○	○	○	○
Our criteria for budget allocations generally reflect long-term considerations *	○	○	○	○	○
Business Strategy - Aggresiveness					
We sacrifice current profitability to gain market share *	○	○	○	○	○
Gaining market share is more important than cash flow *	○	○	○	○	○
We frequently use price-cutting to increase our market share *	○	○	○	○	○

To what extent do you agree or disagree with the following about your organization:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
IS Strategy - Operational Support Systems					
Our IS improve the efficiency of our day-to-day business operations [*]	○	○	○	○	○
Our IS support effective coordination across functions (e.g. marketing, manufacturing) and product lines [*]	○	○	○	○	○
Our IS provide us with the facts and figures we need to support our day-to-day decision making [*]	○	○	○	○	○
Our IS enable us to develop detailed analyses of our present business situation [*]	○	○	○	○	○
Our IS provide sufficiently detailed information to support prudent decision making [*]	○	○	○	○	○
Our IS support detailed analyses of major business decisions [*]	○	○	○	○	○
IS Strategy - Interorganizational Systems					
Our IS enable us to develop stronger links with suppliers [*]	○	○	○	○	○
Our IS enhance our ability to negotiate with our suppliers [*]	○	○	○	○	○
Our IS enhance our ability to negotiate with our customers [*]	○	○	○	○	○
Our IS enable us to develop stronger links with customers [*]	○	○	○	○	○
IS Strategy - Market Information Systems					
Our IS assist us in setting our prices relative to the competition [*]	○	○	○	○	○
Our IS help us introduce new products and/or services in our markets [*]	○	○	○	○	○
Our IS help us monitor changes in our market share [*]	○	○	○	○	○
Our IS permit us to rapidly adjust our prices [*]	○	○	○	○	○
IS Strategy - Strategic Decision Support Systems					
Our IS facilitate strategic business planning [*]	○	○	○	○	○
Our IS help us model possible future outcomes of alternative courses of action [*]	○	○	○	○	○
Our IS are used to forecast key indicators of business performance [*]	○	○	○	○	○