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Antecedents and drivers of IT-business strategic alignment: empirical validation of a theoretical model

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ANTECEDENTS AND DRIVERS OF IT-BUSINESS STRATEGIC ALIGNMENT: EMPIRICAL VALIDATION OF A THEORETICAL MODEL

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Abstract

Aligning information technology (IT) strategy with business strategy has been one of the top concerns of practitioners and scholars for decades. Despite the documented positive effects of strategic alignment on organizational success, only a few organizations consider themselves in alignment. Although numerous studies exist about how to accomplish IT-business alignment, empirical studies based on strong theories have been rare in the literature. This study attempts to fulfill this gap by proposing and empirically validating a comprehensive strategic alignment model. Drawing on prior literature, we identified five antecedents of alignment; centralization, formalization, shared domain knowledge, successful IT history and relationship management. We further hypothesized that the effects of these antecedents are mediated by two drivers of alignment, which are conceptualized as the level of connection of IT and business planning and the level of communication between IT and business managers. Using survey data and structural equation modeling methodology, we show that both drivers had significant effects on alignment, and the effect of connection is about twice that of communications. Our findings also confirm the effects of all antecedents except centralization. Overall, the main contribution of this study is the development and empirical validation of a comprehensive strategic alignment model, providing a more ample prescriptive insight for managing IT-business strategic alignment.

Keywords: IT-business alignment, strategic alignment, antecedents of alignment, drivers of alignment

1 INTRODUCTION

Aligning information technology (IT) strategy with business strategy enables an organization to maximize the impact of its IT investments, achieve harmony between IT and business (Byrd et al. 2006, Henderson & Venkatraman 1993, Nelson & Coopriider 1996, Tan & Gallupe 2006), and increase the organization's competitive advantage, profit margins, and growth (Alter 2005, Byrd et al. 2006, Pearlman & Baker 2005). During the past two decades, executives have consistently identified achieving alignment as one of the top key issues in IS management (Brancheau & Wetherbe 1987, Luftman et al. 2006, Niederman et al. 1991, Rosa 1998). Alignment between business and IT has been an enduring subject for IS scholars as well (Chan et al. 1997, Henderson & Venkatraman 1993, Reich & Benbasat 1996, Sabherwal & Chan 2001). In fact, IT-business alignment is one of the early research streams in the IS literature (King 1978, McLean & Soden 1977), yet it is gaining even more attention in recent years as organizations rely more on information technology for competitiveness and survival in the global economy (Chan et al. 2006, Hu & Huang 2006, Luftman et al. 2006).

However, given the importance and potential benefits of alignment, the number of organizations that successfully align their IT strategy with business strategy is shown to be considerably low. A study by Rosa (1998) has revealed that only eight percent of IT and business managers viewed themselves very effective in aligning IS and corporate goals. Similarly, Luftman et al. (1999) noted that only half of more than one thousand executives that participated in their survey reported that their organizations have achieved some degree of alignment. Naturally, questions like "why haven't we mastered alignment?" have been raised by scholars (Chan 2002).

One of the strategies to improve alignment suggested in the literature is to identify what managerial practices improve the probability of alignment (Chan 2002). Finding these factors has captured the attention of many scholars. These scholars conceptually agreed upon a number of antecedents, yet empirical validation and support for the arguments raised in these studies are lacking, and the few quantitative studies have mixed results (Chan et al. 2006, Reich & Benbasat 2000, Sabherwal & Kirs 1994). Thus, our knowledge regarding the process that leads to alignment is largely limited at conceptual and intuitive level. There is a clear need for both theory and practice for a comprehensive empirical study based on the recent advances in the alignment knowledge and statistical techniques. This study attempts to fulfill this need. The main objective of this study is to integrate and extend the literature by investigating and statistically testing a theoretical IT-business strategic alignment model.

2 LITERATURE REVIEW

Achieving IT-business strategic alignment within the organization has been considered as one of the key issues in IS management for the past decades (Brancheau & Wetherbe 1987, Henderson & Venkatraman 1993, King 1978, Niederman et al. 1991). Aligning IT and business strategies enables organizations to use their IT resources to support their business strategy, thus leading to higher levels of organizational success. Several studies in the IS literature have focused on this performance effect of IT-business strategic alignment. This body of literature has argued conceptually and found limited empirical support for the enhancing effect of alignment on organizational performance (Chan et al. 1997, Chan et al. 2006, Henderson & Venkatraman 1993, Kearns & Sabherwal 2007, Palmer & Marcus 2000, Sabherwal & Chan 2001, Sabherwal & Kirs 1994, Teo & King 1999).

Another stream of research has investigated the antecedents of IT-business alignment to understand the alignment process, and also to provide prescriptive guidance on how to achieve alignment. Recent literature has in general found that the most important antecedents of strategic alignment are shared domain knowledge of business and IT managers, previous success of IT units, connections of business and IT planning, and communications between IT and business executives (Chan et al. 2006, Hu & Huang 2006, Reich & Benbasat 1996, Reich & Benbasat 2000, Sabherwal & Kirs 1994). Although

studies have conceptually agreed on these antecedents, they are largely at conceptual or qualitative level. The number of empirical studies on strategic alignment is limited and the findings across the studies are inconsistent and have three main shortcomings. First, the data for most of the empirical studies were collected in the mid 1990s (e.g., Chan et al. 1997, Chan et al. 2006, Sabherwal & Kirs, 1994). The role of IT in today's organizations is considerably different, and therefore, their values in providing insights to the strategic IT-business alignment process in today's business environment are limited. Second, only a few studies have utilized the benefits of sophisticated statistical methodologies, such as structural equation modeling (SEM), to test the proposed research models. The extant empirical studies mostly utilized multiple regression, ANOVA, and t-tests, which could severely limit their ability to uncover complex interactive relationships among the key alignment constructs. Finally, no empirical studies as we know of have tested the comprehensive models that integrate alignment constructs proposed in multiple studies.

In summary, the current state of the strategic alignment literature calls for a comprehensive empirical study based on the recent advances in the alignment theory and statistical techniques. In the next section we present our research model and develop our hypotheses based on the extant literature.

3 RESEARCH MODEL AND DEVELOPMENT OF HYPOTHESES

After integrating the studies in the literature, we included IT unit structure, shared domain knowledge, successful IT history and relationship management into the model as the most significant antecedents of alignment. We defined strategic alignment as the fit between IS strategy and business strategy of organizations. Thus, when organizations achieve high degrees of strategic alignment, their IS strategy (e.g., IT for efficiency) would support their business strategy (e.g., operating efficiency). Parallel to Reich and Benbasat (2000), we hypothesized that the immediate drivers of strategic alignment are the current business practices and they mediate the effects of antecedents of alignment (Figure 1).

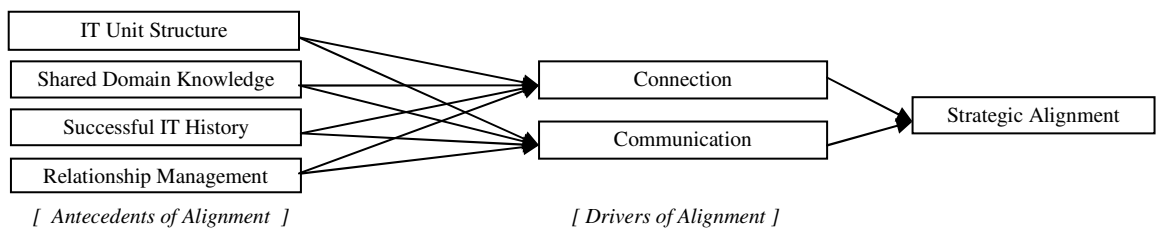


Figure 1. Proposed research model for IT-business strategic alignment.

Connection: Connection captures the level of integration of IS planning and business planning. When IT units do not refer to business objectives, their contribution to the organization can be limited (Pearlman & Baker 2005). Higher levels of integration provide an effective way for chief information officers (CIO) to identify top managements objectives (Lederer & Mendelow 1987) and leads to better understanding of the role of the IS function, more contribution of IS to the organization, less output and process related problems, and consequently to a better organizational performance (Pearlman & Baker 2005, Teo & King 1996, Teo & King 1999). Parallel to that, Teo and King (1997) reported that managers choose to increase the level of planning integration when their organizations need to use IS to support business strategy and to align IS objectives with business objectives, as well as when they realize the importance of IT for their organization.

Although there is qualitative support for the positive effect of planning integration on strategic alignment (Hu & Huang 2006, Reich & Benbasat 2000), the empirical support is somewhat mixed with studies reporting insignificant (Chan et al. 2006, Sabherwal & Kirs 1994) as well as significant (Newkirk & Lederer 2006a, 2006b) effect of planning integration on strategic alignment. Overall, literature seems to suggest that successful strategic planning leads to alignment of business and IS strategies, better analyses of internal operations, more cooperation between organizational groups and

IS group, improvement in capabilities of IS planning process, and achieving competitive advantage (Earl 1993, Segars & Grover 1998). Building on these theoretical arguments, we posit that;

Hypothesis 1: The level of connection between IT and business planning processes will positively influence the level of strategic alignment.

Communication: Communication process involves sharing and exchanging information between parties for the purpose of coordination and mutual understanding (Bacharach & Aiken 1977, Johnson & Lederer 2005). When business executives meet with IS managers frequently and discuss where the business is heading or how to resolve some of the emerging issues, it is more likely for them to converge on how IT can help the organization to achieve its goals (Johnson & Lederer 2005, Pearlman & Baker 2005). This convergence leads to mutual understanding of the organization's business and IT functions and the strategic role of IT in the organization, resulting in collective actions to use IT for competitive advantage (Johnson & Lederer 2005). Overall, communication between IT and business executives is considered as an important enabler for strategic alignment (Alter 2005, Earl & Feeny 1994, Hu & Huang 2006, Johnson & Lederer 2005, Reich & Benbasat 2000, Tan & Gallupe, 2006). Thus, we posit that;

Hypothesis 2: The level of communication between IT and business managers will positively influence the level of strategic alignment.

IT Unit Structure: The structure of organizations has a significant influence on the information flow and human interactions through channeling collaboration, specifying modes of coordination, and prescribing levels of formality (Miller 1987). Considering its potential effect on alignment, the IT unit structure aims to capture the degree of centralization of IT decision making and formalization of IT activities.

Centralization: Centralization represents "the degree to which the right to make decisions and evaluate activities is concentrated" (Fredrickson 1986, p.282). In centralized governance modes, IT activities are coordinated at the corporate level (Sambamurthy & Zmud 1999), and therefore, organizations may require less effort for alignment (Chan et al. 2006). In contrast, in decentralized modes, divisional managers assume authority (Sambamurthy & Zmud, 1999), and they are more likely to focus on their own objectives rather than the central objective. When organizations aim to leverage their IT for a more strategic role or when they are dissatisfied with the level of alignment, one of the first tasks executives undertake is to centralize the decision making (Brown & Magill 1994, Rothfeder 2005).

Centralization has an influence on the communication levels as well. Although centralized mode does not foster interactive and participative decision making across hierarchical levels in organizations (Ranganathan & Sethi 2002), this does not necessarily affect the communication level within the top management. Hage et al. (1971) argued that power and status between job occupants are important inhibitors of communication. As the social status increases in organizations, free flow of information decreases (Barnard 1964). However, since in centralized structure there is less power and status discrepancies among decision makers (e.g., top management team, all C-level executives, etc.), centralization enables better communication among decision makers. Overall, the literature suggests that centralized IT governance is indeed an enabler of IT-business strategic alignment. However, we posit that the positive effects of centralization are mediated by the drivers of alignment. Thus,

Hypothesis 3.1a: The level of IS centralization will positively influence the level of connection between IT and business planning.

Hypothesis 3.1b: The level of IS centralization will positively influence the level of communication between IT and business managers.

Formalization: Formalization indicates "the extent to which an organization uses rules and procedures to prescribe behavior" (Fredrickson 1986, p.283). It facilitates planning process (Miller 1987) and use of formal planning procedures in organizations (Pyburn 1991). Especially in complex organizations, formalization enables the clarification of business objectives, thus increase the effectiveness of IS

planning process in terms of reaching to a consensus on the role of IT (Earl 1993, Lederer & Sethi 1988, Pyburn 1991). Formalized IS planning also ensures that overall IS goals are consistent with business goals of the organization (Lederer & Mendelow 1986).

Top management views identifying corporate strategic direction and business plans as one of the most difficult aspects of strategic IS planning (Lederer & Mendelow 1986). Lack of formal organizational strategic plans creates difficulties for CIOs to identify business objectives as well (Lederer & Mendelow 1987). Therefore, the absence of formal business planning could severely damage the IS planning process (Lederer & Mendelow 1989, Lederer & Sethi 1988, McLean & Soden 1977). Overall, formalization promotes better task coordination through frequent communication and integration of planning, and in turn, increases the quality of strategic IS planning and enhances the IT management and decision making process (Bai & Lee 2003, Ranganathan & Sethi 2002). Thus, we posit:

Hypothesis 3.2a: The level of IS formalization will positively influence the level of connection between IT and business planning.

Hypothesis 3.2b: The level of IS formalization will positively influence the level of communication between IT and business managers.

Shared Domain Knowledge: Shared domain knowledge captures the IT knowledge of business managers and the business knowledge of IT managers (Ranganathan & Sethi 2002). The lack of shared domain knowledge is considered as an inhibitor of communication and strategic IS planning (Lederer & Mendelow 1987, Feeny et al. 1992) since it increases the information asymmetry and results in inaccurate interpretation of messages, ultimately leading to intergroup conflict (Nelson & Coopridge 1996). CIO's business knowledge enhances formal and informal interactions of CIO with top management and increases the assimilation of IT in organizations (Armstrong & Sambamurthy 1999). Moreover, business competency of IS managers has a significant effect on determining the extent of IT-business planning integration (Teo & King 1997). Kearns and Sabherwal (2007) also argued that when top managers possess knowledge of IT, the opportunities are created for business and IT managers to participate in each other's planning process.

Shared domain knowledge is considered as an important component of strategic alignment (Reich & Benbasat 1996, Tan & Gallupe 2006, Teo & Ang 1999). In their respective case studies, both Reich and Benbasat (2000) and Hu and Huang (2006) reported the positive influence of shared domain knowledge on the communications between IT and business executives and connections between IT and business plans. Overall, the literature converges on the positive effects of shared domain knowledge on IT-business alignment through enhancing current business practices. Thus, we posit:

Hypothesis 4a: The level of shared domain knowledge of IS and business managers will positively influence the level of connection between IT and business planning.

Hypothesis 4b: The level of shared domain knowledge of IS and business managers will positively influence their level of communication.

Successful IT History: Successful history of an IT unit gives credibility to the IT unit and creates favorable perceptions of IT in top management (Chan et al. 2006, Earl & Feeny 1994, Hu & Huang 2006, Reich & Benbasat 2000, Rockart et al. 1996). Also, it is an important determinant of the participation of business managers in the planning process (Pearlman & Baker 2005, Teo & Ang 1999). The confidence of top management in the IT department and IT department's efficient and reliable services are found to be important critical success factors for aligning IS plans with business plans (Teo & Ang 1999, Luftman et al. 1999). Teo and Ang (1999) postulated that confidence of top management in IT increases their commitment to the strategic use of IT, making them more likely to allocate appropriate resource for planning and development of IT applications. On the other hand, lack of IS management credibility discourages top executives from communicating their needs and problems (Pearlman & Baker 2005), and more importantly, from communicating their goals, objectives and plans (Lederer & Mendelow 1989), thus inhibiting strategic alignment (Luftman &

Brier 1999). Clearly, successful IT history itself won't impact IT-business alignment directly. However, the increased confidence of top management and the higher credibility of the IT unit are likely to enable IT unit to participate effectively in the strategic planning process and communicate effectively with business managers. Based on these arguments, we posit that:

Hypothesis 5a: The level of successful IT history will positively influence the level of connection between IT and business planning.

Hypothesis 5b: The level of successful IT history will positively influence the level of communication between IT and business managers.

Relationship Management: Relationship management captures the extent to which IS and business managers invest time and effort in managing relationship between each other. A close relationship between IS and business managers enables them to work together to understand business and technological requirements (Jones et al. 1995, Rockart et al. 1996, Watson 1990). Ongoing personal relationships facilitate the parties to engage in knowledge creation and their availability for knowledge exchange (Hatzakis et al. 2005, Nahapiet & Ghoshal 1998). Having a good relationship between CIO and CEO is considered as an enabler of IS-business planning integration (Feeny et al. 1992). Bai and Lee (2003) noted that the CEO/CIO relationship can be crucial for the alignment and the quality of strategic IS planning. This relationship, in turn, enhances the ability of IT to add value to the organization (Earl & Feeny 1994) and ensures the successful integration of business and IT strategies (Rockart et al. 1996).

Moreover, several scholars suggested that stronger relationship between business and IT managers would improve their communication level (Coughlan et al. 2005, Hu & Huang 2006). Rockart et al. (1996) noted that only through the established relationship between IT personnel and line managers can the necessary communication occur. The informal relationship networks are also an important component of alignment (Chan 2002). The development of relationships makes the alignment concept more tangible through the understanding of existing communication channels and networked relations in organizations (Coughlan et al. 2005). Overall, IT/business relationship is considered as an important enabler of strategic alignment (Luftman & Brier 1999, Tan & Gallupe 2006). Thus, we posit that the active relationship management by IT and business managers enhances the connections between IT and business planning, and improves their communications, or;

Hypothesis 6a: The level of relationship management will positively influence the level of connection between IT and business planning.

Hypothesis 6b: The level of relationship management will positively influence the level of communication between IT and business managers.

4 RESEARCH DESIGN

Based on the theoretical alignment model and a thorough review of the literature, we developed a survey instrument to collect data for validating the constructs in the model and testing the research hypotheses (Table 1). A seven-point Likert scale was used for all the measurement items in the survey.

Construct	Sample Questionnaire Item
Strategic Alignment	The IT plan contains detailed action plans/strategies that support organization's business objectives and strategies.
Connection	Business and IT executives both participate in the strategic planning process.
Communication	Business and IT executives have frequent, direct, formal communications.
Centralization	Issues related to major IT investments have to be referred to business executives at the top management.
Formalization	Operating rules/procedures play important roles in how issues are handled in the IT unit.

Shared. Domain Know.	IT executives have a good understanding of the organization's business environment.
Successful IT History	The IT unit has been considered as credible.
Relationship Man.	Business and IT executives make an effort to maintain a better relationship with each other.

Table 1. Constructs and Sample Measurement Items Used in the Survey

Following a pilot test with EMBA students enrolled in a large public university to validate the survey instrument, we collected the data from organizations in Turkey primarily because of one of the authors' connection to the Turkish industry organizations. The survey instrument was translated into Turkish and then back-translated for discrepancies with the original instrument in English. Considering that constructs such as strategy, technology and structural characteristics are considered as having low cultural dependency and are invariant in different cultural setting (Samiee & Athanassiou 1998), with respect to this study, we believe that potential threats to conceptual equivalence was minimal.

An invitation for participation to the survey website was distributed through e-mail to 440 organizations in the directories provided by Istanbul Chamber of Industry. Also, one of the authors personally contacted the executives and business managers of 120 organizations. A total of 560 invitations were distributed. The target population included business administrators with complete knowledge of IT and business strategizing processes. At the end of the process, there were 169 usable questionnaires. Approximately half of the respondents (45%) were C-level executives and one third (33%) were directors in their organizations. The majority of the sample (78%) consists of firms with more than 500 employees. The average revenue of the firms in the sample was about \$1.3 billion. Manufacturing firms represents one third of the sample. This is followed by Wholesale/Retail firms (20%) and Technology/Telecommunication (10%) firms.

We used partial least square (PLS) analysis to analyze the survey data and test the research hypotheses. After verifying that the missing data were not systematic, multiple regression method was used for data imputation. Item loadings and average variance extracted (AVE) values were examined to assess convergent validity. Item loadings range between 0.68-0.91 ($p < 0.01$), and AVE scores range between 0.61 and 0.78. These results showed that the constructs demonstrate convergent validity. We assessed discriminant validity by examining the AVE scores and the cross-loadings of the items. The loadings demonstrated that the items loaded higher for their corresponding constructs than for other constructs, and the items loaded higher for their corresponding construct than other items, thus providing adequate statistical support for discriminant validity. The Cronbach alpha values of the constructs range between 0.79 and .93, suggesting adequate level of construct reliability (Table 2). Lastly, we utilized Harman's one-factor test and common method latent variable test to measure the common method bias, and found that the effect of this bias is insignificant.

	Mean	Std.Dev.	α	Align	Cent	Com	Form	Con	ITSuc	Rel	Shrd
Align	5.54	1.01	0.86	0.834							
Cent	5.98	0.93	0.85	0.069	0.810						
Com	5.43	1.04	0.79	0.553***	0.136	0.842					
Form	5.52	1.06	0.88	0.361***	0.083	0.294***	0.818				
Con	5.21	1.23	0.89	0.641***	0.049	0.631***	0.348***	0.868			
ITSuc	5.50	1.01	0.93	0.317***	0.064	0.389***	0.172**	0.262***	0.884		
Rel	5.18	0.99	0.84	0.312***	0.035	0.385***	0.309***	0.417***	0.346***	0.869	
Shrd	5.26	0.92	0.79	0.353***	0.124	0.390***	0.248***	0.445***	0.328***	0.473***	0.780

Notes: (1) ** $p < 0.05$, *** $p < 0.01$; (2) Diagonal elements are square root of AVE; (3) α : Cronbach's alpha

Table 2. Descriptive Statistics and Psychometric Characteristics of the Constructs

5 HYPOTHESIS TESTING AND RESULTS

SmartPLS software (Ringle et al. 2005) was used to conduct PLS analysis (Figure 2). Initially organizational size was included in the structural model as a control variable, however, considering its insignificant effect, we excluded it from the model for parsimony. The results of the analysis provided support for the positive effect of connection ($b = 0.50$, $p < 0.01$) (H1) and communication ($b = 0.24$, $p < 0.01$) (H2) on alignment. The R^2 value of .46 demonstrates that the model explains a considerable amount of variance in strategic alignment.

We found partial support for H3. On one hand, the effect of centralization on connection and communication was insignificant. On the other hand, formalization had significant positive effect on both connection ($b = 0.20$, $p < 0.01$) and communication ($b = 0.13$, $p < 0.05$). The results also provided support for the positive effect of shared domain knowledge of IT and business executives on connection ($b = 0.28$, $p < 0.01$) and communication ($b = 0.18$, $p < 0.01$) (H4). Similarly, we found support for our arguments that when both business and IT executives foster good relationship, this, in turn, increases the connection of IT and business planning ($b = 0.20$, $p < 0.01$) as well as the communication between IT and business executives ($b = 0.19$; $p < 0.01$) (H6). Lastly, prior success of IT unit had significant effect only on the communication of the executives ($b = 0.26$, $p < 0.01$), thus providing partial support for H5. Both connection and communication have R^2 value of .31, indicating that the antecedents explain a good amount of variance in the drivers of alignment.

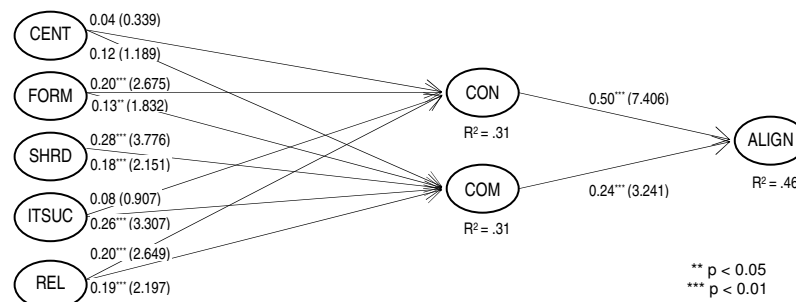


Figure 2. Results of the PLS analysis

Overall, we found strong support for our arguments regarding the positive effect of drivers of alignment on strategic alignment. Also, most of the antecedents had significant positive effect on the drivers of alignment as expected.

6 DISCUSSION

Studies in the IS planning and strategic alignment literature underline the importance of IT and business planning connection and communications between IT and business executives (Hu & Huang 2006, Reich & Benbasat 2000, Teo & King 1996). Building on these arguments, we hypothesized that the effects of antecedents are mediated by these current business practices. The statistically significant positive associations provided empirical support for these arguments. When the effects of these drivers are compared, the results indicate that the positive effect of connection is about the twice that of communication. This suggests that integrating the planning process is more essential than the level of communication between the executives in terms of achieving and sustaining strategic alignment. This finding is important in a sense that although previous studies postulated the effects of connection and communication, due to the qualitative nature of these studies, a comparison of their effects on alignment was not possible. This empirical study not only provides support for the qualitative studies, but also extends our understanding of how the underlying mechanisms of strategic alignment work. One possible explanation of this finding is that planning process is more formal and results in written

documentation, thus, enforcing a stronger form of alignment compared to communication which is bound to individuals and embedded in relationships. However, this finding does not in any means diminish the importance of communication between IT and business managers.

We identified five antecedents of strategic alignment based on literature review and validated their roles in alignment based on the data. First, we examined two characteristics of unit structure; centralization and formalization. In centralized structures, IT activities are supposedly coordinated at the corporate level, requiring less effort for alignment. Our results unexpectedly showed insignificant effects of centralization on drivers of alignment. Although studies in the alignment literature found similar results (Chan et al. 2006), more research is needed to fully understand the underlying reasons of this insignificant effect. On the other hand, the results provided support for positive effect of formalization as expected. Highly formalized organizations have clearly defined job descriptions and standardized policies and procedures, and they make use of task forces and committees more often. These characteristics are beneficiary for IT executives since unclear business goals and objectives present challenges to them. It is considerably easier and more effective for IT executives to integrate IT strategy into business strategy when the business strategy is formally outlined in the organization. Similarly, as a result of formalization, it is likely that executives would participate in more committees or task forces which would increase direct interactions and information sharing, which, in turn, would increase the level of communications and the number of channels used for communications.

Shared domain knowledge is one of the widely studied antecedents of strategic alignment. It refers to business and IT executives' knowledge and understanding of each other's environments. This understanding also brings the appreciation to each other's accomplishments. If executives do not have shared domain knowledge, communications among them will be ineffective, and this will consequently inhibit the level of communications. In other words, without shared domain knowledge, effective communications shouldn't be expected. On the other hand, when executives have shared domain knowledge, this creates more opportunities to achieve integration during the strategic planning process. Our results clearly support these argument by indicating that an increase in shared domain knowledge leads to better integration of IT and business plans and more frequent communication between IT and business executives.

Similar to shared domain knowledge, successful IT unit history is another commonly recognized antecedent. When IT units are reliable, credible, and deliver their commitments on time, this creates a positive impression on business executives. Our findings showed that successful IT history has a positive effect on the communications between IT and business managers. This outcome is only logical because business executives would like to consult some of their ideas with or query certain solutions from IT executives only if they consider the IT unit as credible, reliable, and successful. In an organization where the IT unit cannot deliver its promises, business executives wouldn't take the time and effort to communicate with IT executives and the role of IT would certainly be marginalized.

Our findings also show that the significant effect of relationship management on both drivers of alignment is approximately the same, lending empirical support to the largely qualitative arguments in the literature. Having good relations between CEO and CIO is considered crucial for the quality of IS planning (Bai & Lee 2003) and it is also identified as an important enabler of strategic alignment (Feeny et al. 1992). When IT and business executives invest their time and give effort to have a good relation, this in turn would increase the level of communications between them. Furthermore, they would value more each other's inputs during the planning process, and consider each other's priorities, goals, and objectives as their own, resulting in higher levels of planning integration.

7 CONCLUSION AND CONTRIBUTIONS

Strategic alignment between IT and business has been one of the top concerns of practitioners and scholars. However, despite its documented positive effects on organizational success, only few organizations consider themselves in alignment (Luftman et al. 1999, Rosa 1998). We attempted to

fulfill the need for a comprehensive alignment model that not only integrates and extends the alignment literature, but also provides prescriptive insights to practitioners. Given the limited empirical findings in the literature, our first aim was to provide a more comprehensive framework that is empirically tested with survey data, and find support to the largely qualitative framework of IT-business alignment theory. Moreover, we chose to use SEM to test the proposed model to overcome the limitations of previously utilized techniques (i.e., ANOVA, t-tests). Also, by collecting the data from Turkey, we added a different dimension to the alignment literature, which mostly utilized data from US and Canada. Another contribution to the literature is the direct measurement of centralization in organizations. In the literature, organizational size was used as a proxy to centralization, assuming that small organizations are centralized and large organizations are decentralized.

The findings of this study present a more complete view of the strategic alignment process, thus providing a finer prescriptive guidance to executives for achieving and sustaining the alignment. First, with regards to communication and connection, business managers may reconsider their strategizing process and keep planning integration as one of their primary goals and seek opportunities to increase their communication level with IT managers. Second, given the positive effect of formalization on strategic alignment, executives can choose to increase the level of formalization in their organizations through different strategies including clearly outlining the responsibilities of IT and business units in terms of integration and implementing policies and procedures regarding decision making processes. Third, considering the importance of shared domain knowledge, business and IT executives should seek opportunities to increase their knowledge in each other's domains by attending internal and external trainings and seminars. Forth, they should invest in time and effort to maintain a good relationship amongst each other. Lastly, IT executives should be more proactive in terms of increasing the visibility of their unit's success and making sure that they delivery on their promises.

There are some notable limitations in this study that deserve attention. For example, although we based the causalities in our research model on the findings of the strategic alignment literature, this does not preclude potential recursive relations between some of the constructs. In addition, due to the characteristics of the data collection process, we weren't able to calculate the non-response bias. One venue for future research is to investigate the proposed model with regards to the type of business strategies an organization is pursuing. Such an investigation would reveal how the effects of antecedents vary by strategy type. Also, this study was built on the common proposition that IT strategy should support business strategy. However, other schools of thought (e.g., synchronization or convergence of IT and business strategies) are also suggested in the literature (Sambamurthy 2008). Future research can investigate the model with respect to these considerably new approaches to strategic alignment.

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