

IDENTIFYING CRITICAL DIMENSIONS THAT SHAPE THE BUSINESS AND
INFORMATION TECHNOLOGY ALIGNMENT PROCESS:
A CASE STUDY OF A UNIVERSITY

by

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A Dissertation Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

Capella University

October 2009

UMI Number: 3373465

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Abstract

The continuing innovation of hardware and software, and the uncertainty associated with the economics of business continuity will necessitate greater utilization and fit between technology and business. The purpose of this qualitative research was to identify, list, and describe dimensions used to enable alignment of the business unit and IT services. Six research questions were used to guide the study. This research focused on the four assumptions regarding the identification of the key dimensions of the alignment as process, content, structure, and strategy, using current literature. This research employed a systems approach to describe the interactive behavior of the content, process, strategy, and structure that exist between the business units of the organization and ITS. The research collected perceptual responses from face-to-face interviews with key members of the university. The findings showed the fact that technology has a prominent portion in the strategic planning process for the achievement of the university's mission and goals; and more attention and acknowledgement needs to be given collaboration between the different schools and college of the university; and more focus and attention in terms of distribution of financial resources to support strategic process. Additionally, there was the need to develop and maintain a business-ITS governance to guide the behavior and activities of ITS. The resolution of the alignment process was shown not to be the quick fix using traditional sequential strategies, but the implementation of a framework (model) that is fluid and sustainable for the business environment. The integration of process, content, strategy, and structure is an easy and adaptive model for practitioners to follow and scholars to investigate. Security is a very important

consideration within all aspects of information technology and it was not overlooked, but determined to be of such importance to the implementation of alignment, that security should be the focus of its own empirical study. A follow-up study that focuses on the relationship between security and the critical dimensions of process, content, strategy, and structure should be conducted.

Dedication

This work is dedicated to my best friend who happens to be my wife, Hellen Louise Lewis; and to the two people that gave me life, Atlean and Nathan, my mother and father; and to the person that shaped my curiosity, my grandmother Ella.

Acknowledgments

I appreciate and thank Dr. Lawrence Ness, my mentor for his support during this dissertation journey, his patience and guidance was measured to allow me to finish at my pace. I also want to thank my committee members, Dr. Jelena Vucetic and Dr. Denna Barwick who invested time away from their families to assist me in the completion of this dissertation process.

None of this could have been possible without the continued support of my Daughters Keiba and Fitmanneka, my son Nathan, and my seven grandchildren Tymrik, Reggie, Anika, DaNia, Ke'Anna, James, and Kason.

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

The alignment between the goals and objectives of an organization and the activities of its information technology services (ITS) is a well-documented and researched topic. The strategies to accomplish the alignment are also well documented. These strategies are complex and multidimensional, including (a) the strategic alignment model as outlined by Henderson and Venkatraman (1991, 1993, 1999) in which four strategic domains are defined as the elements necessary for the alignment process to occur; (b) Luftman's (2003) use of the recognition of maturity factors as suggested means of achieving alignment; (c) Andriole's (2006) use of optimization activities for a supply chain model to address the alignment process as either collaborative or integrative strategies; (d) the works of Magill (1992), and Christenson and Walker (2004) in which alignment was asserted to be a command structure problem; (e) Peterson (2004) cites alignment between users and systems as the critical factor for successful organizational alignment; (f) the work of Strnadl (2006) focused on the less complex process-driven architecture model for support of the core operations of the organization; and (g) yet another strategy, the technology portfolio process, presented by Lyer and Gottlieb (2004) in their examination of the four-domain architecture (FDA).

The research listed are representative of strategies that have at their core, or purpose, the integration of organizational goal achievement and supportive activities of ITS as evidence of alignment, which is consistently on lists of the top 10 concerns of executive managers (Luftman, & Kempaiah, 2007). A common theme for the last 2 decades has been the inadequate alignment between ITS and organizational goals and

objectives (Hirschheim & Sabherwal, 2001; Moody, 2003; Weiss, Thorogood, & Clark, 2006).

Background of the Study

The use of technology is pervasive in all aspects of society in which information storage, retrieval, access, and management decision models are required. The continuing innovation of hardware and software will necessitate greater utilization and fit between social and business use. Because of dependence on technology tools to be more competitive, organizations are under ever increasing pressure to become more competitive in an ever expanding global market, regardless of their profit or nonprofit status (Aversano, Bodhuin, & Tortorella, 2005; Motjolopane & Brown, 2004). Nonprofit organizations are competing for the ever decreasing discretionary income of national and international citizens. For these organizations, the efficient management of information systems is paramount to fundraising efforts, role identification, and task management (Motjolopane & Brown, 2004). In the case of profit organizations, the selection, use, and maintenance of customer, marketing, administration, and employee systems are critical to the organizational success and establishment of distinctive competitive advantages (Aversano et al., 2005). Through decades of investigation, researchers have increased the body of knowledge about the causes of misalignment and particular solutions designed for certain situations. These situations were defined by four alignment dimensions: process, content, structure, and strategy (Guzman & Kaarst-Brown, 2004; Lee et al., 2006; Pijpers, Gordijn, & Akkermans, 2008). Pijpers et al. stated the traditional means of aligning business and information technology services (ITS) was to use a sequential, or top-down, approach, adding to the discussion that the sequential approach was not

realistic because of the dynamic business environment. The alignment dimensions are not solutions but components used to frame the activities, values architecture, and goal achievement to accomplish alignment. The dimension process concerns activity to define who does what, when, and where. The dimension content concerns the creation and preservation of value. The dimension structure concerns the arrangement of things. The dimension strategy concerns the intent, or the goal, of the organization that indicates organizational direction. Because the alignment process is multidimensional, interactive, and interdependent, there is no simple solution that can be generalized across the vast spectrum of organizational and business types, thus the reason for Pijpers et al.'s statement of an unrealistic approach to a sequential or top-down approach.

Statement of the Problem

The problem addressed in this study was the disconnect between ITS and the goals of the organization that are reflective of poorly managed, abandoned, and failed business technology projects. According to Jeffery and Leliveld (2004), poorly managed, abandoned, and failed technology implementations cost United States (U.S.) businesses a conservative \$100-\$150 billion annually. Failed projects are directly related to the ability of ITS and the parent organization to communicate effectively the integrative purpose and benefit of the project, as suggested by Christenson and Walker (2004), Luftman (2003), Peterson (2004), and Scott (2003). With better integration of business and ITS, the savings from successful business technology projects can be redirected toward additional business needs, which are helpful in strengthening other competitive positions such as research and development, customer relations, and knowledge management techniques.

The disconnect in this study was defined as the inability of the organization to manage its IT services and related activities to produce consistent support for behavior that results in sustained and maintained competitive advantage in the industry and the market place. According to Kirsch (1997), alignment was considered a process. Kirsch argued that the multiplicity of views on the subject of alignment has resulted in a multitude of mechanisms to control or manage alignment. According to Kirsch, a process was defined as a particular course of action intended to achieve a result; therefore, one may assume that a process has a definite structure and a defined outcome. When the outcome of a process can be predicted based on given input, the input then can possibly be predetermined. Nevertheless, the alignment of the organization and ITS is not necessarily accomplished through a prescribed set of events or activities, as is evident from the multiplicity of strategies that can be employed.

The interactive dynamics between ITS and the organization is one of the most studied events in IT literature, and rightly so, because of the great impact of ITS on the business community. Information is the cornerstone of all successful business, from the ability of the organization to manage and train an employee to the ability to manage its customers' desires, wants, and needs and its partnerships and alliances. Although technology is not a core component of the organization, such as marketing, administration, or human resources, it is the supportive framework for obtaining organizational goals and objectives (Andriole, 2006).

Purpose of the Study

The purpose of this qualitative research was first to identify, list, and describe dimensions used to enable alignment of the business unit and IT services. With a better

understanding of these dimensions of success, future researchers may then be able to examine and define the behavior of the alignment process to support the creation and maintenance of a distinctive competitive advantage for the organization. Second, through this study, the researcher will list and describe the strategies that organizations use as a guide to align ITS and organizational goals. These strategies are tools used to attempt incorporation of organizational goals as part of the filtering process. Through this process, organizations or business units create the environment in which they can accept or reject the system and technology. Finally, the researcher will incorporate the dimensions of the alignment process to build a model to guide practitioners and scholars through a successful application of alignment behavior to resolve misalignment problems as defined by Ward and Peppard (2002).

Rationale

This research is based partly on the strategic alignment model of Henderson and Venkatraman (1991, 1993, 1999) and the FDA research of Lyer and Gottlieb (2004). According to the Henderson and Venkatraman strategy, one should place process before structure to create a foundation of priorities to align ITS activities and organizational objectives. In the strategic process of Lyer and Gottlieb, organizational goals are incorporated as part of the filtering process for acceptance or rejection of systems and technologies. As identified previously, there are many strategic processes that can be employed to guide the alignment process to successful resolution. Each of these processes was detailed later in chapter two. The disconnection failure between ITS and organizational goals has resulted from the inability of individuals in ITS to communicate

the fit of systems and technologies and of executives and managers of business units to assess the supportive role of ITS in achieving the organizational objectives.

Research Questions

The research questions focused on the effectiveness and efficiency of the alignment process, defined as the investigation, analysis, and selection of the appropriate application or hardware to support organizational goal achievement. The following questions were used to guide the study:

RQ1: What collaborative activities should leaders of the organization and ITS employ to increase organizational performance?

RQ2: How should organizational leaders structure ITS for a better supportive role in creating and sustaining a competitive advantage among its competitors?

RQ3: How should organizational leaders structure required procedures and processes for business and ITS in support of the core environment of the organization?

RQ4: How should organizational leaders manage business and ITS knowledge used in the operation of organizational business ventures?

RQ5: How should organizational leaders create and manage physical information pathways of business and ITS while creating competitive distinctiveness for the organization?

RQ6: How should organizational leaders use internal and external human resources of business and ITS to develop a competitive advantage?

Significance of the Study

The importance of understanding the impact of alignment processes to overall business success was identified by the success or failure of organizational IT projects. IT projects have a 23% failure rate and a 49% rate of significant challenges, as reported by The Standish Group International (2001). Communication (process) has been identified in studies by Reich and Benbasat (2003); Rathnam, Johnsen, and Wen (2004); and Luftman (2003) as a significant component in the alignment process. With a better understanding of the key factors of alignment and the interdependent nature of each for the successful alignment of ITS activities and organizational goal achievement, a dynamic alignment resolution process can be applied to activities and event.

This research did not confirm the results of the study conducted by Mooney, Gurbaxani, and Kraemer (1996) in which they argued that there was currently no empirical evidence supporting the capability of IT for creating value. The question of value has been interjected into the conversation as a result of the examination of successful IT services during Mooney et al.'s (1996) investigation. They found that the value of IT services is derived from its alignment with the purpose of the organization. Drucker (1977) and Robbins (2003) both agreed that no organizational unit can exist or declare value outside the boundaries of the purpose of the organization. This argument was forged from systems theory.

Definition of Terms

In this section, the following definitions of conceptual terms used in this study having multiple meanings are provided for clarity and continuity of thought:

1. *Success* is a measure used to identify the attainment of a goal or objective as prescribed by the purpose of the organization (*Dictionary.com Unabridged* [Vol. 1.1], s.v. "Success." Retrieved September 22, 2008, from <http://dictionary.reference.com/browse/Success>).
2. *Process* is defined by Lyer and Gottlieb (2004, p. 588) as “procedures, business tools, tasks that encode business rules, and dependencies required to support the various functions within a business.”
3. *Content* is value added to the core operation of the organization (*WordNet® 3.0*, s.v. "Content." Retrieved September 22, 2008, from <http://dictionary.reference.com/browse/Content>).
4. *Structure* is defined by Lyer and Gottlieb (2004, p. 589) “as people and their roles and responsibilities, organizational structures and boundaries, as well as their interrelationships to alliances, partnerships, customers, suppliers, and other stakeholders in the enterprise.”
5. *Strategy* is defined as the development and creation of a procedure that is directed toward sustaining long, intermediate and short term direction for the organization that directs the activities of the internal and external stakeholders (*Dictionary.com Unabridged* [Vol. 1.1], s.v. "Strategy." Retrieved September 22, 2008, from <http://dictionary.reference.com/browse/Strategy>).

Assumptions and Limitations

This section describes the limitations of the investigation and the assumptions of the researcher that form the basis for this study.

Limitations

This is a qualitative research study. Therefore, the nature of this methodology makes it difficult for other researchers to replicate the research environment to authenticate the results or to add to the basic premise of the study (Creswell, 1994). The qualitative approach also makes it difficult to generalize the findings from either a macro or meso perspective (Grunbaum, 2007). The findings of this study are limited to the specific observations of the researcher and perceptions of the participants. Although generalized inferences can be made from common perceptions, anecdotes, and events, they are not as valid as those drawn from an impartial empirical investigation in which only the facts are examined (Creswell, 1994).

Assumptions

This research is focused on the following assumptions regarding the identification of the key dimensions of the alignment process:

1. Process is the component of alignment related to the activities of ITS and business units, the manner in which the task (role identity) is considered and performed, and those who do the task (role responsibility).
2. Content is the component of alignment related to the value that is created or modified or that detracts from the organization as a result of ITS and business unit activities (identity and responsibility).
3. Structure is the component of alignment related to organizational, business unit, and ITS command structures and ITS technological architecture.
4. Strategy is the component of alignment related to the procedures that the organization and ITS pursue to define the objectives (activities) and that

describe the context in which the organization bases its activities to achieve its goals. Strategy selected by ITS must be supportive of the goal achievement behavior of the organization.

Nature of the Study

The study problem was the misalignment of ITS activity and the behavior of the organization to manage its goals. This study defined, described, and explored the means of resolving misalignment. The researcher identified, defined, described, and explored the key dimension alignment process, the dimension elements which frame or are present in the successful alignment of ITS and the organization. This study focused on the complexity of ITS and the business alignment process. Some of the traditional alignment strategies appear to be incomplete to effect long-term performance. In these traditional alignment models, identified in the introduction, there is a single focus; the alignment solution is expressed as an event rather than as a systematic solution as suggested by Kearns and Sabherwal (2006). Thus, the nature of this study focused on identifying, describing, and clarifying the behavior pattern that results in successful alignment between ITS and business.

The Theoretical Framework

The focal point of this research was the behavior between the organization and information technology and/or information systems (IT/IS) relative to Porter's (1998) examination of the interrelationship between business units, technology, and the value chain. Theoretical concepts are generally formed from models, general views of how things work or reality. The theoretical foundations approximating the interactive behavior between business units and technology events within a company that results in a

competitive advantage was explained by (a) transaction cost theory, (b) social cognitive theory, (c) contingency theory, (d) institutional theory, (e) system theory, and (f) theory of reasoned action and planned behavior. These theories were the supportive frames for the models discussed later in this paper. Each theory was examined in the context of the key dimension components of the alignment process.

Transaction Cost

This theory concerns the process dimensions used to define the framework by which systems result in efficient transactions. The task environment of the transaction results in the efficient conversion of inputs into outputs to advance and enhance the core technologies of the organization (Wingreen, Blanton, Kitter, & Fentriss, 2003). This theory focal point was the reduction of uncertainty and the specific role identity of each asset during the transaction (Kumar et al., 1998).

Social Cognitive Theory

This theory also concerns the process dimension whereby the organization, through its social systems, reduces the differences between each of the business units by seeking to form interdependency relationships (Bandura, 2001). Social cognitive theory was relevant to this discussion because of its explanation of the need to synchronize ITS activities in a peripheral support role. This supportive role was in response to the goal achievement behavior of the organization.

Contingency Theory

This theory was support for the strategic dimension, which concerns the capability of ITS and the parent organization to adapt the activities of its service components to the

changing environment (Croteau & Raymond, 2004). The relevance of this theory to this discussion was a better understanding of the effectiveness or ineffectiveness of various models pursued in attempts to align business activities with the ITS environment.

Through this theory, one attempts to explain the behavior which results in effective organizations that have obtained fit between ITS environments and business units (Weill & Olson, 1989).

Institutional Theory

In this theory, the key component structure as defined previously was clarified, identifying the adaptive arrangement that references and highlights the legitimacy of its hierarchal command. The determinant basis of the institutional theory was its consideration of the manner in which the structural reference to rules and standards are established and legitimized. This theory concerns the manner by which procedures become standard practices, the standard for installation and maintenance of technology within the infrastructure of the organization. Alternatively, this theory suggests the process was used in the selection of technologies within the organization.

System Theory

This theory was support for the interactive relationship between the four key dimensions. According to Arbnor and Frolick (2008), organizations were defined as a set of components and the relationships among them. In short, the mission, culture, personnel, policies, structure, decision-making process, authority hierarchy, and objectives of the organization and more define the organization as a system. The argument of system theory was the sum of the parts (components) was greater than the

whole, an inherent extended value (Porter, 1985; Strnadl, 2006). This is the key to understanding the necessity for fit as utility or value in the organization.

Theory of Reasoned Action and Planned Behavior

According to Ajzen and Fishbein's (1973) theory of reasoned action and planned behavior, the behavior of individuals is controlled by their intentions to perform the behavior; and these intentions are, in turn, a function of their attitudes toward the behavior and their subjective norms. In this study, the researcher will incorporate reasoned action and planned behavior as a foundation for explaining the observed interaction between the organization and its IT services. Based on the theory of reasoned action and planned behavior, the researcher will examine these interactions through perceived outcome responses of the interviewed participants, observed behavior, and written artifacts.

Organization of the Remainder of the Study

The remainder of this proposal will be organized into four chapters. Chapter 2 contains a review of a preponderance of the current literature related to the key factors outlined in chapter 1: content, process, structure, and strategy. The content section will focus on the attributes that result in the development or creation of value for the organization. These attributes include examination of the value chain, the maintenance of competitive advantage and positioning, and collaborative processes. In the process section, the discussion will be focused on activities directly contributory to the successful integration of people, policies, and procedures. The strategy section will be focused on the models employed in the organization to align the activities of ITS and the behavior of the business units to improve organizational performance. The structure section will be

dedicated to the examination of business command structures and IT command structure models. The structural section will conclude with a description of tasks and a definition of responsibilities of IT workers relative to the formation of a structure for the successful support of the direction and goals of the organization. This level of detail is necessary to support clarity and frame the complexity of the task to match business processes, value, goals, and structure to IT activities, content, strategy, and architecture. The considerations are multilevel and multidimensional. Therefore, the researcher will demonstrate in this study that the sequential approach will not be successful. Chapter 3 is devoted to the methodology to be used in the study. The chapter contains information concerning the method of sampling, the measuring instrument, the data collection methods, the data analysis process, and the ethical considerations involved. Chapter 4 is devoted to the data collect plan, data analysis approach, findings and analysis of the research. Chapter 5 focuses on the recommendation of the results and the conclusion of the research.

CHAPTER 2. LITERATURE REVIEW

Researchers in the area of IT services respond by examining the necessity and benefits of aligning IT with business goals (Chan, & Reich, 2007; Teo & King, 1997; Segars & Grover, 1999). However, despite the intuitive appeal of the argument for aligning ITS with business strategy, successful results of this alignment have been sparse and fragmented. Through the investigation of the current literature, this research focused on the identity, definition, and description of the complexities associated with consistent positive results of alignment between ITS and organizational goals.

The research literature of Lackey and Brown (2002); Bieberstein, Bose, Walker, and Lynch (2005); and Peterson (2004) indicated there are structural flaws hindering alignment between ITS and their organizations. Researchers have been fragmented in their recognition of the central issues and the methodologies to correct the flaws. The examination of the FDA, referenced earlier, has been focused on a pattern of interdependency within the organization, hinting of the development of an assessment tool for the alignment process. Through further investigation of the literature and later in this study, the research made the case for the specific development of an effective alignment process supported on the contextual framework of a portfolio management model. To arrive at the development of a finished tool to assist in the alignment process, the organization in this study must progress through a transition, starting with the concept of alignment and ending with an object to guide the alignment process.

Abstraction Process

Solomon, said to be the wisest man to have lived, said, “Wisdom is the principal thing; therefore get wisdom: and with all thy getting get understanding” (Proverbs 4:7

King James Version). One of the most difficult tasks in human communication is the transition from a concept (idea) held by one person to a recognizable object envisioned by another. Hayakawa (1990) described a process, which he labeled levels of abstraction, used as a guide to assist in defining the concept and in identifying its dimensions, variables, and indicators. The process of abstraction is the transition from concept to a measurable reality. In the field of research, this process is referred to as operationalization. This study is the building blocks for the development of operationalization of the many variables of the alignment process.

In this section of the study, the research examined the effectiveness of Chan and Reich's (2007) and Hirschheim and Sabherwal's (2001) transitions from the concept of business strategic orientation and information system strategic alignment. The comparative guides used the four components mentioned in connection with Hayakawa: (a) defining the concept, (b) identifying the dimensions, (c) identifying the variables, and (d) identifying the indicators.

The Concept of Alignment Process

Chan and Reich (2007); and Hirschheim and Sabherwal (2001) identified alignment as a process, a perceived construct of complex, interdependent business and IT orientation drivers designed to have a positive impact on organizational performance. Venkatranman (1989) stated that it is "the relationship between strategy and performance at the Information Technology (IT) service level, as well as the business level" (p. 126). Hirschheim and Sabherwal's conceptual framework is based on three ideologies extending from an alignment concept. First, organizational performance is based on

appropriate structure and the capabilities to execute strategic decisions. Second, IT is an influence on business strategy. Third, strategic alignment is a process.

The Dimensions of Alignment

Sabherwal and Kris, (1994) argued that there is a distinction between content, process, strategy, and structure with regards to business and IT alignment. They further added that these key alignment factors have been addressed in the prior literature on business strategy and aligning technology.

Holland and Skarke (2008); Pijpers et al. (2008); Caetano, Silva, and Tribolet (2005); and Chung, Byrd, Lewis, and Ford (2005) all suggested organizational content (value) is a contributing factor in the process of alignment. Lee et al. (2006) argued the recognition and support of business value. More specifically, they argued that, through organizational content or what the organization has to present and how it positions that value (i.e., process, knowledge or expertise), organizations have the best opportunities for creating and advancing the competitive advantage of the organization. Guzman and Kaarst-Brown (2004) contended that the focus on content should also be concerned with the artifacts and communication between IT and business managers with regard to their mutual roles and requirements, which are critical to the survival activities of the organization as a whole.

Guzman and Kaarst-Brown (2004); Motjolopane and Brown, (2004); and Aversano et al. (2005) argued process as a necessary factor contributory to the successful alignment process of IT and business. This process component serves to describe and define the scope and responsibility of the roles of the individuals involved in the

performance of their jobs. The defined roles and responsibilities result in reduced task ambiguity, which results in reduced transaction costs (Guzman & Kaarst-Brown).

Luftman (2003), Luftman and Kempaiah (2007, 2008), and Kearns and Sabherwal (2006) argued that strategy is another dimension present in the successful alignment process between ITS and business performance. Pijpers et al. (2008) incorporated three of the four dimensions discussed in this study: process, content, and strategy. Their discussion focused on the complexity of the alignment process and the need to develop a comprehensive methodology to guide the alignment process. Hu and Huang (2006) focused on four components as the key to alignment: the structure of ITS and the organization and organizational and ITS processes. However, this strategy is a consideration of only two dimensions, an imitation of the two dimensions of the rifle alignment process. This strategy may be effective for hitting the target but not for eliminating the target (misalignment).

Strnadl (2006); Pijpers et al. (2008); and Ariyachandra and Frolick (2008) purported structure as an important component for successful alignment. Structure from the perspective of the organization is not just command or authority formation but the manner in which things are set up. Structure from the perspective of ITS is its architecture, command, technology, and systems. Strnadl (2006) referenced Zachmann's architecture framework in his defense of a four-layer process-driven architecture model, reinforcing the contention that structure is an important component of a successful alignment process. Chung, Byrd, Lewis, and Ford (2005) concluded that IT infrastructure, the manner in which it is set to deliver service, and mass customization have a positive effect on organizational business performance. Ariyachandra and Frolick

investigated 10 critical success factors related to successful business performance and concluded that the manner in which the organizational structure and procedures are developed and implemented determine the success or failure of events and, ultimately, the survival of the organization.

Content

Content concerns the value being added to the organization. When focusing on content, it is important to distinguish the manner in which value is being added.

According to Earl (1989), there are three strategies: the information systems (IS) strategy, the information technology (IT) strategy, and the information management (IM) strategy. Through these strategies, one adds value based on the goal (intent) and the corresponding objective (action steps) of the organization. The IS strategy is focused on systems or business applications of IT, concerned primarily with aligning them with business needs and using them to derive strategic benefits. The IT strategy is concerned mainly with technology policies, including such aspects as architecture, technical standards, security levels, and risk attitudes. The IM strategy is concerned with the structures and roles for the management of IS and IT and is focused on issues such as the relationships between the specialists and users, management responsibilities, performance measurement processes, and management controls.

Recognizing the importance of IS, IT, and IM strategies, as well as the infeasibility of examining all three, this research focused on the IS strategy because it is the most appropriate selection given the scope and nature of this investigation. The IS strategy is directly concerned with business applications. Researchers have previously suggested that the IS strategy should be aligned with the business strategy (Das, Zahra,

& Warkentin, 1991; Zviran, 1990). King (1978) argued that the IS strategy should be derived from the business strategy. Lederer and Mendelow (1989) identified reasons for aligning business and IS strategies, including the increased likelihood of developed systems being more critical to the organization and of top management support for IS projects. These studies implicitly suggested that alignment between business and IS strategies results in enhanced business success.

ITS and the Value Chain

The role of ITS within the business value chain is that of applying solutions to the competitive process: value activities and margins, as defined by Porter (1985). The scope of value activities is inclusive throughout all business units in the organization. Each unit has its core activities that are support for the core competencies of the organization. In pursuing these core activities, business units must refine their communication and collaborative responses through innovative IS. The components of these activities should not be limited to single applications in the traditional processing of policies and standards or technology applications but should be integrative models of policies and technologies. Byrne (2003) argued that the fluid role of IS results in emergent opportunities for business growth and the distinctiveness needed to drive the adaptive nature of businesses in an increasingly complex business environment.

Competitive Advantage and Position

Thompson, Strickland, and Gamble (2005) and Porter (1985) defined value chain as activities the company pursues to increase the value of a service or product, with the intent of creating competitive advantage within the market place. In both texts presented

the value chain as an analytical tool for examining the effectiveness of primary and support functions within a firm and their relationship to competitive advantage and industry position. The value chain is the process used to determine the cost competitiveness of a firm, which is accessed through the examination of primary and support-related cost activities. Cost competitiveness is established through careful crafting and implementation of the value chain activities: The more efficient the execution of the primary and support activities, the greater the margin from its competitors. Porter (1985) added that further examination of the value chain reveals the historical position of a firm and its market strategies and patterns of successful implementation of a value system.

Managing the strategic processes of a firm to achieve a competitive advantage can best be accomplished through a process of benchmarking the costs related to its value chain (cost competitiveness). Porter (1985) concluded that the four dimensions of competitive scope (segment scope, vertical scope, geographic scope, and industry scope) “shape the configuration and economics of the value chain” (p. 54). Firms that capture and retain the costs related to the dimensions of competitive scope can use this information to modify their value chain activities to serve market segments in geographic sites that competitors may consider unprofitable or beyond their capacity to serve.

Strategic alignment is the efficient and effective management of the resources of the firm with regard to making decisions about the future direction of the organization. The assessment of the organizational deployment of ITS activities related to its value chain is important in the improvement of its competitive scope, which is part of the foundation for the competitive advantage (Christenson & Walker, 2004).

Shared Domain Knowledge and Social Dimensions

Shared domain knowledge and the social dimensions of the organization are important aspects of communication between ITS and the business units of the organization. There must be an associative knowledge process to foster content and concept understanding with the least ambiguity to ensure success as described by Glen (2003) from the ITS perspective and Scott (2003) from the organizational unit or management perspective. Chan and Reich, 2007; and Hirschheim and Sabherwal (2001) directed researchers to a realization that business and IT alignment is a continuous process that necessitates management in both areas of business and technology to employ and practice shared domain knowledge.

Reich and Benbasat (2000), in their explanation of organizational/IT alignment, discussed the two approaches used in the investigation of this subject. The first approach is focused on the strategies, structure, and planning methodologies in organizations; in the second approach, one “investigates the actors . . . values, communications with others” (p. 82). Reich and Benbasat provided support for this dual approach, suggesting two dimensions, intellectual and social. The intellectual corresponds to the first approach: strategies, structure, and planning methodologies in organizations; the social dimension corresponds to the second approach, “the investigation of actors . . . values, communications with others” (Reich & Benbasat, p. 82). *Social dimension* is defined as “the state in which business and IT executives within an organizational unit understand and are committed to the business and IT mission, objectives, and plans” (Reich and Benbasat, p. 82). The second approach and the social dimensions are shared both in this study and the investigation of shared domain knowledge and its role in the alignment of

business and IT. Reich and Benbasat addressed the importance of shared domain knowledge but did not discuss the effect on the IT leader's external representation role. The IT leader's external representation role is "an opportunity to establish an appropriate image" (Glen, 2003, p. 142).

Establishing and maintaining alignment necessitates ITS investigation of opportunities in technology that may have been overlooked if not for the pursuit of shared domain knowledge. Obtaining resources to accomplish objectives is a necessary element to the success of the IT department. Reich and Benbasat (2000) mentioned building an IT success pattern as a key to mutual respect and confidence in what ITS communicates to the business units. Glen (2003) argued that managing expectations may be best accomplished at the beginning of a project rather than during the early phases of the development life cycle to ensure that the product and service meet expectations and needs and that the expected results are aligned with the goals of both the business units and the organization. He cited the establishment of long-term trust and respect. Once the organization has achieved alignment through shared domain knowledge, the role of ITS will be positioned better to project a positive image inside and outside the venue of the organization. The short-term and long-term effect on alignment created through shared domain knowledge between an organization and IT services is clarity of business direction, which results in increased productivity.

Process

Process (activity) concerns the manner in which organizations develop and implement strategy. Unlike the limited empirical research on IS strategy content, there has been considerable research on the IS strategy process. Lederer and Mendelow (1989)

and Henderson and Sifonis (1988) suggested difficulties in developing and implementing IS strategies. Earl (1993) highlighted the taxonomies of strategic IS planning. Premkumar and King (1978) constructed contingency relationships between the context and the IS planning process. The need to link the IS planning process with business planning was also emphasized by King (1978). Stage models of the evolution of this linkage were investigated by Synnott (1987). These researchers drew upon rich concepts from the business strategy literature to enhance the understanding of IS.

A disconnect exists between ITS governance, its process for automating decision making, and the mission of the organization. The successful alignment of ITS is inclusive of organizational success (Burrell & Morgan, 1997). A disconnect, misfit, or misalignment occurs when belief patterns are changed or when beliefs are established based on false assumptions and are never challenged. Orlikowski and Baroudi (1991) said any disconnect is a result of the actors in the organization and ITS sides taking for granted the historical and ideological nature of their predecessors' practices.

Researchers have been divided on the exact cause of so many IS project failures. Fit was the single most repetitive reference as an underlying reason for the consistent failure of projects. Rawstorne, Jaysauriya, and Caputi (2000); and Chu and Smithson (2003) identified organizational structure as an element of fit (alignment). Wingreen, Blanton, Kitter, and Fentriss (2003) and Goodhue and Thompson (1995) explored the concept of fit based on role identity and task. Task references the operational aspect of the fit between the organization and IT. The operation of ITS is task oriented and an exemplification of Fayol's principles of management in which authority is legitimized by structure and directions that come from one source (as cited in Goodhue & Thompson).

The artifact in which control or direction of the operation and reduction of the uncertainty of task identity and role responsibility is vested is the ITS governance. Governances are written rules to direct personnel, thus eliminating the need to improvise practices related to integration of software or hardware into the organizational network infrastructure-technical system. Governances serve as knowledge depositories to ensure that proprietary knowledge is retained in the position and not with the person. Best practices are the time-tested methods of producing success in the activities related to the ITS operational methodology; therefore, best practices are incorporated into the IT governance to become policy and procedure.

Best Practices

Best practices are activities mainly performed by ITS. Although the descriptive nature of best practices associates them with the key dimension process, they have been mentioned in this section because of their association with IT governances.

McFarland (1981) argued that risk is defined as exposure to five elements and that these elements indicate risk is manageable. This implies that a process to manage risk can be developed. The management technique was discussed in terms of assessing IT-related activities that have the potential of advancing the distinctiveness of the organization within its industry. McFarland attempted to compile a comprehensive profile (a table) to define or describe the dimensions of a successful project. The table included eight project types and descriptions of structure and technology levels relative to project size.

Ward and Peppard (2002) ventured further in their examination of risk, providing a view of the evolution of IT portfolio management (ITPM) as a result of McFarland's (1981) work, which pointed to the development of an alignment tool. Through the

evolution progression, Ward and Peppard (2002) attempted to account for what they recognized as an inherent design flaw: the inability of the ITPM models to account for even more complexities created with the innovative progress of systems and hardware applications. In the majority of the ITPM models of 2002, researchers attempted to reconcile demand and supply in the design structure, reflecting a business-administrative strategic planning model in which the application of the IT portfolio was viewed in regard to the advantage gained in the marketplace and the market share of the industry. The work of McFarland resembled the method-driven strategic planning model in which the failure of a project can be minimized through the aggregate risk analysis of a system and a multidimensional management approach. The change that occurred since the 1981 and 2002 studies is the competitive nature of the industry, which accounts for the preoccupation of an organization with the business-administrative strategic planning model to manage portfolio aggregate risk as defined by McFarland's work.

Another factor for the seemingly different subjective focus of the ITPM models has been the need to manage IT portfolios in organizations in which more than one business unit is in competition for the use of IT assets and resources at the same time. This factor has become more important in global organizational environments in which organizational growth occurs as a result of vertical or horizontal acquisitions (Ward & Peppard, 2002).

Another element that has been a consideration in the success of an IT project is the planning element. Planning is a function of the dimensions of alignment, specifically long-term, medium-term, and short-term planning processes (Bieberstein et al., 2005; Lackey & Brown, 2002). This type of planning process is necessary in support of the

integrity of the rational structural of the organization (Scott, 2003). The planning process is used to assist in the formation of policies and the establishment of standards of operation. Without the planning process, there are no behavior controls inherent in the legitimacy of formal structure, a rational system (Lackey & Brown; Scott; Wingreen et al., 2003). Finally, the planning process should be used to foster shared expectations (rules) and explanations (paradigms). The necessity of this process can be summed up as what we agreed on is what you get (Scott, 2003).

Yet another element in the success profile is evaluation (Scott, 2003). The recognition of change is contingent upon acknowledgement that change has occurred. Without a process to evaluate these critical governance value drivers, planning and operations will suffer because ITS personnel are doomed to repeat the same mistakes (Lackey & Brown, 2002). Without this type of process, ITS personnel will also not be able to replicate their successes easily (McFarland, 1981).

The success of IT projects is not a simple fit of cost, executive support, or best practices. One must use an integrative approach of command structure, task identity, strategic alignment, and an evaluative process of successes and failures.

Roles and Paradigms in Alignment

Ramakrishna and Lin (1999), Rawstorne et al. (2000), and Wingreen et al. (2003) argued that, over the last 30 years, the role of the IT/IS department has changed. Although organizations and businesses are faced with competitive pressures that demand IT success, IT has not changed its management styles. Glen (2003) argued that the business manager's image of the IT worker has also not changed; therefore, IT success has been hampered by an outdated management style that has not been adapted to

accommodate the uniqueness of present-day IT and business knowledge workers. With this misconception of IT and business knowledge worker management needs, there is little doubt that aligning IT activities and organizational goals has necessitated a large portion of organizational time and resources (Glen; Scott, 2003). With increasing economic pressures on organizations to perform efficiently and effectively in domestic and global market places, both profit and nonprofit organizations must incorporate technology to support short- and long-term objectives (Scott).

Glen (2003) listed 12 competencies used to measure the productivity of the IT worker: (a) technical competence, (b) personal productivity, (c) ability to multitask, (d) ability to describe the business context of technical work, (e) ability to forge compromises between business and technical constraints, (f) ability to manage client relationships, (g) ability to manage technical teams, (h) ability to play positive politics, (i) ability to help expand client relationships, (j) ability to work through others to make others productive, (k) ability to manage ambiguity, and (l) ability to manage time horizons. Schenk, Vitalari, and Davis (1998) detailed their investigation of the differences between novice and expert system analysts and the difference in their respective productivity. Schenk et al. developed their hypotheses using existing research as background for the support of two views: (a) understanding of the problem or event and (b) problem solving strategies. Each view was delineated into several subcomponents to afford further clarity and purpose relating to measurable characteristics differentiating novice from expert system analysts. Schenk et al. addressed several of the competencies identified by Glen.

One of Glen's (2003) competencies identified by Schenk et al. (1998) was technical competence, defined in two parts: technical breadth and technical depth: "Technical [breath] indicates a geek's degree of relevant knowledge; technical depth is his (her) specific knowledge about a particular technical subject" (p. 77). Schenk et al. addressed technical competence as simply knowledge availability. They related knowledge availability as being either "semantic" or "episodic" (p. 78). The authors termed semantic knowledge as facts that are known but little associative utility. These facts are often information gathered from textbooks or classrooms. Glen associated this type of knowledge with technical breadth. Episodic knowledge, as defined by Schenk et al., is knowledge acquired through experience. This type of knowledge Glen associated with technical depth. Knowledge measured as technical competencies is often "domain-specific" (Glen, 2003, p. 78) in nature to the IT domain (e.g., network administrator with networking, application developer with developing, and database administrator with database). Each measure of competence necessitates a different knowledge base and strategy. Thus, the availability of domain-specific knowledge is another key factor used to measure the depth of the expert's competence.

Glen's (2003) competencies of the "ability to describe the business context of technical work" (Glen, 2003, p. 77) and the ability to forge compromises between business and technical constraints were addressed in Schenk et al.'s (1998) knowledge organization. Knowledge organization was defined as the ability of the worker to group problems with similar underlying structures, envision business and technical-related issues, and formulate a comprehensive plan. The ability to forge compromises between business and technical constraints was not directly addressed. However, these

competences were implied through Schenk et al.'s affirmation that experts consider multiple strategies during the problem-solving process. Glen's ability to manage ambiguity, loosely defined in the IT domain as the conversion of uncertainty into possibilities, was addressed through Schenk et al.'s category of problem solving, identified as trigger identification. Trigger identification was defined as the ability to filter relevant and the irrelevant information from the problem environment. The ability to build a cognitive process to identify the relevant domain-specific and episodic issues results in better developed goals and direction for the solution of the problem. According to Schenk et al., a better cognitive process is a memory organization for problem solutions.

Schenk et al. (1998) stated that "a cognitive schema is a memory organization that permits the problem solver to filter process and analyze environment information" (p. 7). With this, the researchers addressed two of Glen's (2003) competencies: (a) ability to forge compromises between business and technical constraints and (b) ability to play positive politics. Schenk et al. (1998) emphasized that analysts get the expended schemata from the behavior that results from the trigger identification. Through this cognitive structure, greater problem solving abilities can be forged.

In their problem-solving category, Schenk et al. (1998) addressed three of Glen's (2003) competencies for goal setting, specifically the abilities to manage technical teams, work through others to make others productive, manage ambiguity, and manage time horizons. Goal setting is a cognitive framework used to address the structure and scope of the problem, as stated by Schenk et al. Through goal setting, one can structure the approach and behavior as it relates to the solution of the problem. Managing technical

teams is about providing a sensible structure to reduce ambiguity and result in productivity. Glen identified the ability to set clear goals as a requirement for managing time horizons.

Matching Glen's (2003) 12 competencies to the subcomponents of the problem-understanding and the problem-solving categories of Schenk et al. (1998) resulted in overlap in addressing some of Glen's competencies. One competency not addressed in the Schenk et al study was personal production. Personal production is a subjective observation and, therefore, difficult to quantify. However, in this analysis, the researcher is not suggesting that the findings of Schenk et al. (1998) are validated through alignment to Glen's 12 essential competencies for measuring and guiding productivity of the IT worker.

Another perspective of these approaches can be classified as positivist and interpretivist. The positivist approach, or methodology, involves the ability to measure relationships and is tied to what can be seen. The interpretivist approach, or methodology, is associated with qualitative techniques through which one attempts to understand the manner in which individuals' interpret their world. Either approach can be valid, given the purpose and focus of the study. The focus of this study is to define and describe the dimensions of the alignment process; therefore, the researcher will employ the interpretivist approach to offer clarity of behavior and perception as related to the process, content, strategy, and structure of the alignment process.

IT Governance

IT governance is the framework for compliance and risk management (Peterson, 2004). This framework should include input from the internal and external stakeholders

of the project and be a chronicle of their shared responsibilities. Avison, Gregor, and Wilson (2006) presented three projects to serve as icons of the failure to address 10 key components of IT governance (p. 91). As mentioned at the start of this discussion, the governance is a framework for storing the relevant artifacts related to the successful completion of a project. The governance is not a “how-to” manual; it is the instrument used to define the responsibilities of the agreement of commitment of those stakeholders.

Peterson (2004) described four IT governance models (centralized, IT-centric federal, business-centric, and decentralized), which are in part defined by the number of decision-making responsibilities retained by top management. The other part of the IT governance distinctions for decision making involves centralization or decentralization. Decisions made from the top-management level based on organizational needs are classified as centralized decision-making. In centralized decision-making, the resources of the organization may be more focused on the achievement of organizational goals: economies of scale, standardized controls, and greater control in creation and maintenance of organizational culture. Decisions made at the organizational unit level (business or service) are classified as decentralized decision-making. In decentralized decision making, there may be "greater responsiveness and flexibility to business needs" (Peterson, p. 11). In decentralization, there may be a faster response rate to the fluid global changes so that the organization can remain competitive or advance its competitive edge.

Both Glen (2003) and Peterson (2004) defined and described a number of management techniques and strategies to complement valid frameworks for the management of personnel, infrastructure, application, and deployment practices and even

form such frameworks. This section of the study has been focused on the management aspects of ambiguity and the capabilities of IT governance. Glen's ambiguity management was separated into three categories: task, structural, and environmental. Environmental ambiguity is concerned with the interpretations of organizational relationships, standards, and procedures. Structural ambiguity is focused on what is being done and the manner in which it is being done. Task ambiguity is focused on the actors (members of the project team), their roles, and leadership interaction with the actors.

Governance capabilities were delineated in Peterson's (2004) study as structural, process, and relational. Relational capability is the framework for solving integrative problems between stakeholders (standards and procedures). Process capability is the framework for the creation of strategic decision-making models (how and what is done). Structural capability is the framework for the creation of positions, roles, and team dynamics (who will do what, when and how). Another way to view the relationship between ambiguity management and IT governance capabilities is to consider the capabilities as containers and ambiguity as the content of those containers. In this study, the researcher will focus on the management of ambiguity as content (what is being done) and capabilities as context (how it is being done).

Glen (2003) described the management of ambiguity as a leadership style. Peterson (2004) described IT governance as a management process. Glen addressed the manner in which one manages; Peterson addressed the what, when, and where of one's management. The aforementioned rationale is illustrative of the manner in which these two seemingly unrelated categories can be viewed as dependent activities: Glen's ambiguity management content components of task, structure, and environment paired to

the context component of Peterson's IT governance capabilities of structural, process, and relational. The supportive roles were not matched as simplistically as implied.

The pairing of content and context was represented as a model, not as absolutes. Other considerations not configured into this pairing were integrated into IT governance, such as the four distinct IT governance models defined by Peterson (2004) and IT governance value drivers. These elements were important in the formation of an effective IT governance architecture but were not essential in the examination of the IT governance in relation to Glen's (2003) management concepts.

Strategy

Strategy (goal seeking) concerns the question of creating and sustaining a long-term direction for the organization to account for the activities of internal and external stakeholders. The purpose of this discussion is not to define or detail the many strategies that an organization may employ but to emphasize the depth of the complex nature of the alignment process. This section has been focused on a brief explanation of the complicated, delicate nature of the strategy factor as it is related to the alignment process for organizations. Strategic management is the efficient and effective use of the resources (activities) of the organization to make decisions about the future direction of the organization relative to strategic planning and strategy implementation (Chu & Smithson, 2003; Thompson et al., 2005).

Thompson et al. (2005) defined value chain as the linked set of value-creating activities the company performs internally, consisting of two broad categories of activities: core and support. Porter (1985) argued that the value chain of a company is the activities that "disaggregate a firm into strategically relevant activities in order to

understand the behavior of costs and existing and potential sources of differentiation” (p. 38). Inbound logistics, operations, outbound logistics, marketing and sales, and service are the five key activities Porter, identified the needed to sustain competitive advantage and provide value to the organization, arguing that through these activities, one provides direction for the organization. Porter, (1985) argues that every organization competing in whatever market must establish a market position within an industry, this organization must control some or all of the activities associated with the creation and development of value chain for their product or service. These activities primarily associated with the value chain are (a) supply management, (b) daily operations, (c) distribution, (d) sales and marketing, and (e) service.

Thompson et al. (2005) and Porter (1985) presented the value chain as an analytical tool to examine the effectiveness of primary and support functions within the firm and its relationship to competitive advantage and industry position. The value chain is the process through which one determines the cost competitiveness of a firm. Both Thompson et al. and Porter suggested the determination of the cost competitiveness of a firm is accessed through the examination of the primary and support-related cost activities. Cost competitiveness is established through careful crafting and implementation of the value chain activities: The more efficient the execution of the primary and support activities, the greater the margin of the firm to its competitors. Porter (1985) added that further examination of the value chain reveals four dimensions of competitive scope (segment scope, vertical scope, geographic scope, and industry scope) that “shape the configuration and economics of the value chain” (p. 54). As stated at the start of this discussion, the intent has been to highlight the complex nature of the IT

business alignment process. If ITS is expected to provide results in support of the mission and goals of the organization, then consideration must be given to an in-depth investigation of business environmental and competitive parameters.

The factors that are combined to make a strategy successful include (a) fit, (b) effectiveness, and (c) efficiency (Thompson et al. 2005). Fit can be assessed in terms of macro, meso, and micro levels. Macro-level fit includes industry-wide factors the organization may not control but to which, by obligation, it must conform, such as regulatory rulings or standards.

Another factor influential in the direction of the strategic process is the direction of the industry pursued because of consumer opinion rather than industry needs (Porter, 1985). The driving forces of the industry related to consumer opinion are usually short lived, replaced by yet another consumer opinion, and are emotion-centered rather than being birthed from rational intent.

Fit, as an influencing factor at the meso level, is related to direct competitors within a given sector or market orientation (Thompson et al., 2005). Some of these influencing factors are supply chain controls, market penetration preparations, customer relation processes, pricing strategies, and value chain orientation. Fit, as an influencing factor at the micro level is related to the alignment of the level of support of the internal business units of an organization for the strategic vision of that organization (Porter, 1985: Thompson et al.).

The integration and implementation of technology are important factors in assessing technology fit. The first factor affecting change within any organization is effectiveness, which is related to supportive influences to sustain competitive advantage

(Porter, 1985). In the current technological environment, an efficient organization is one able to deliver its services and goods to the consumer while managing a collaborative environment (Thompson et al. 2005). Additionally, Thompson et al., argues the second factor affecting change is efficiency, which is related to the ability of the organization to improve its productivity or performance. Systems highlighting the successful integration of personnel and systems, machines, and people or policies to increase productivity are systems such as enterprise resource planning (Lewis, 2008).

IT-Business Alignment Models

The strategic alignment models presented in this section have not been represented as the only models or the most important ones. However, they are representative of the overall range of models within the current research literature accessed for this study. The purpose of this section is to acknowledge the existence of these models and describe their purpose with regards to the complex nature of the alignment process.

Strategic Alignment Model

The strategic alignment model components as defined by Henderson and Venkatraman (1991, 1993, 1999) are business strategy, information technology strategy, organizational infrastructure and process, and information system infrastructure. The ability of the organization to achieve alignment within this strategic framework “is based on the need to achieve alignment across” the four domains (1991, p. 24). According to Henderson and Venkatraman (1991, 1993, 1999), the focus in the strategic alignment model is the four interactivities of the parent organization. These interactive components are at the core of organizational competitiveness: the business strategy, information

technology strategy, organizational infrastructure and process, and the information systems infrastructure and process. In the introduction to the problem section of this research, seven strategies or processes are identified, each with its effectiveness for a particular set of inputs used to define particular outcomes. Henderson and Venkatraman's (1991, 1993, 1999) strategies are focused on the collaborative interaction of domain components designed to assimilate the activities of people, technologies, and policies and procedures to produce a continuous competitive advantage. In this strategy, process is placed before structure to create a foundation of priorities to align ITS activities with organizational objectives. Drucker (1977) defined objectives as outcome measurement markers that do not necessarily define input behavior or actions.

Maturity Model

Luftman (2003) argued that six categories of maturity are combined to form the basis for IT-business alignment: (a) communication, (b) competency-value measurements, (c) governance, (d) partnership, (e) technology scope, and (f) skill. The attention that one component receives over another is not representative of greater importance for that component. This model is based on perceptive knowledge of an end user. In this research, it is acknowledged that there are some actions and operations that are hidden from observation that can be used to explain or justify conditions described within this model. This model is strictly a perspective based on user experiences and technical knowledge about the manner in which ITS should be support for the organization and the manner in which the organization should interact with ITS. In this study, the level of ITS support is not represented as the sole responsibility of ITS. The business operational components of the organization have a symbiotic relation with ITS.

Scott (2003) attributed success of the organization, a symbiotic relationship between IT/IS and the parent organization, to a shared responsibility characteristic of the rational system of an organization.

Collaborative Integrative Model

Andriole (2006) described two types of criteria that organizations should consider when assessing their investment in business technology: (a) collaborative—developing a common functional /knowledge venue—and (b) integrative—developing a supportive environment for the collaborative activities. Andriole used his study to define a process to guide the business technology strategic planning process. To clarify the process characteristics, Andriole used the optimization activities for a supply chain model to address perceptual, procedural, and technical components of a successful integration practice for either collaborative or integrative strategies. Andriole further used the three components (perceptual, procedural, and technical) in discussion topics for personalization, real-time analytics, automation, technology integration, and adaptive infrastructures.

Ward and Peppard (2002) argued that an effective process must be established for the successful development of a business IT/IS integrative alignment. Ward and Peppard (2002) cited Earls's 1989 work, *Management Strategies for Information Technology*, in which he listed five stages of strategic development: (a) business-led, (b) method-driven, (c) technological, (d) administrative, and (e) organizational. Andriole (2006) stated Earls's organizational stages depicted the model for successful integration of business strategy with IT strategy. The Andriole study also included a discussion of the complexities of an adaptive infrastructure in which agility, scalability, and extensibility

of design and function are characteristics of what Ward and Peppard described as external and internal (long- and short-term) considerations.

Ward and Peppard (2002) addressed the evolving role of IT/IS within the organization with a chart in which they depicted a typical early model of the IS/IT organization. This model lacked the features related to infrastructure. Ward and Peppard also addressed the primary objective of IT/IS, presenting the 3-era model, which did not address the infrastructure component or requirement. The use of matrixes and models in which reference to the infrastructure was omitted could mislead some practitioners into believing that infrastructure is not an important consideration of the organization-IT/IS fit. The infrastructure is support for activities to allow the organization to create and sustain its competitive advantage (Lyer & Gottlieb, 2004).

The increased complexities of the business environment have resulted in altering the interdependency between organizational goals and the activities of the IT department, thus creating misalignment (Bieberstein et al., 2005; Peterson, 2004; Wingreen et al., 2003). Misalignment is the inability of ITS activities to be used for direct support of the mission or purpose of the organization. Scott (2003) argued that the relationship between purpose and fit is mistakenly aligned often to the public statement of purpose rather than to the actual purpose.

Structural Model

Lackey and Brown (2002); Bieberstein et al. (2005); Wingreen et al. (2003); and Peterson (2004) agreed that alignment between ITS and the organization is hindered because of structural flaws. Researchers have been fragmented in recognition of the central issues and divided about methodologies to correct these flaws. In examining the

FDA referenced earlier, one can see a pattern of interdependency within the organization. The FDA can be used as a business assessment tool, to verify and model specific corrective measures to tailor a business event (Bieberstein et al.). Through further investigation, one can identify industry specific dependency to be used in the development of an effective portfolio management model.

The works of Bammi (1985) and Christenson and Walker (2004) were focused on alignment as a command structure problem. These researchers cited task and role identification and work flow as critical to the development of alignment in short purpose. All success has as its established purpose to drive priorities, strategies, plans, and assignments. Therefore, organizational purpose should be the driver for the priorities, strategies, plans, and assignments of the organizational business units. The purpose that results in being successful was best defined by Drucker (1977) as a "foundation for priorities, strategies, plans and work assignment. . . . Structure follows strategy. Strategy determines what the key activities are in a given business. And, strategy requires knowing what our business is [goal] and what it should be [activities]" (p. 66).

Users and Systems Model

Peterson (2004) cited the disconnect between users and systems as critical to the formation of successful alignment. Irestig, Eriksson, and Timpka (2004); and Flores et al. focused on strategic planning of ITS as a source for organizational success and alignment. DeLone and McLean (2003) and Lackey and Brown (2002) focused on the ability of ITS to measure and review the processes and procedures used to accept or reject emergent and innovative technologies used by the organization.

Process-Driven Model

Strnadl (2006) focused on the less complex process-driven architecture model to support the core operations of the organization, informal versus formal. Kirsch (1997) utilized an analytical approach in a case-driven positivist research study to examine the interaction of development projects when different control modes were used. The author identified two research questions and defined the two types of control modes, formal and informal. The author's analysis of the data, collected from interviews and presented in a simple spreadsheet format, indicated IS manager and user contact in the four control modes; however, no statistical examinations were presented.

Kirsch, Ramamurthy, Ko, and Purvis (2002) conducted an analytical examination of the use of the four control modes first presented in Kirsch (1997). Kirsch used a survey questionnaire to collect the data. Kirsch et al.'s research was an extension of Kirsch's study to clarify the 1997 investigation. Unlike that research in which no hypotheses were presented, the assumptions in the Kirsch et al. study were not challenged; therefore, no testing could be performed either to accept or to reject the hypotheses. Based on the methodology, development of the data collection instrument, and validation, the analysis process and results presented in Kirsch et al.'s research project should be replicated easily. The content of Kirsch, Ramamurthy, Ko, and Purvis, and Kirsch studies was focused on the same elements of control modes, formal and informal. The same variables in each of these modes were also examined. The difference between the two studies was the method employed to gather the data, interview (1997) versus questionnaire (2002). During an interview, the interviewer is able to provide the interviewee with clarity of purpose for the questions. A questionnaire is an impersonal presentation and does not

usually include a means for providing clarity of purpose. The 1997 study appeared to have been used as an exploratory approach to the 2002 study. This is the same approach the researcher will adopt in this study; an exploratory study to identify, define, and explore the activities and behavior between the organization and ITS with regards to the critical dimensions of the alignment process will be conducted.

Four-Domain Architecture

According to Jeffery and Leliveld (2004), poorly managed, abandoned, and failed technology implementations cost U. S. businesses a conservative estimate of \$100-\$150 billion annually. Failed implementation projects were identified as ITS and organizational goal alignment issues by Coffey (2003), Sata (2004), and McAfee (2004). Lyer and Gottlieb (2004) identified FDA, and Peterson (2004) followed this research with a discussion of FDA with regard to the analytical properties in assessing the alignment of portfolio management of ITS and the strategic planning process as the key components of fit or alignment between ITS and organizational goals.

Lyer and Gottlieb (2004) proposed the construction of four domains, independent of each other, driven by external factors. The authors argued that this transient relationship resulted in the formation of the architecture for business enterprise. The descriptive elements (domains) of FDA are (a) process, (b) information-knowledge, (c) infrastructure, and (d) organization. The process domain is related to the procedures, processes, and tools necessary for support of the core organizational environment. The information-knowledge domain is related to the business data (raw and managed) used in the operation of the business ventures of the organization. The infrastructure domain is related to the physical plant, hardware, and software systems. The organization domain is

related to the people within the organization, including their roles and responsibilities, and the external stakeholders.

These four domains are components of a system to provide stability and survivability for the organization. According to Scott (2003), the functional rationality of a system is the basis for the interdependency of its components to work toward a common goal efficiently and effectively. A formal command structure is incorporated in a rational system. A position on the command chain is the difference between arguing for a purchase and purchasing an investment. A purchase is often associated with short-term relief, but an investment is associated with support for long-term goal objectives. All too often purchases are made without understanding the strategic opportunities and the interdependency between IT/IS and business units of the organization.

Coffer (2003) argued that there are four critical portfolio management practices to support good ITPM application: (a) recognizing that only a fraction of IT spending is demarked in projects; (b) capturing data on all IT efforts to provide a clear picture of current allocation and potential efficiencies; (c) matching IT investments and recurring costs against the business mission for which they are support; and (d) framing questions in terms of one future versus another, not wishful thinking against the status quo. The aforementioned criteria, along with other management and technical input, are the foundation for the embryonic stages of ITPM and application (Hoffman, 2003; MacVittie, 2003; Moad, 2003).

Structure

Structure (architecture) concerns the question of a complex system considered from the point of view of the whole rather than from any single part. A structure is

anything composed of people and their roles and responsibilities, organizational structures and boundaries, as well as alliances, partnerships, customers, suppliers, and other stakeholders arranged together in a way that denotes activities directed toward achieving a purpose (Lyer & Gottlieb, 2004).

Thompson et al. (2005) did not explicitly define a business model but related business models to goals the organization wants to accomplish and the manner in which the organization achieves those goals. A business model is a description of the manner in which an organization functions, a general template to describe the major activities of the organization. Through it, one can identify the customers, products, and services of the firm. A model also includes information about the organization of a firm and the manner in which it generates revenues and profits. Business models are combined with strategy to guide major decisions at a company. These models can also be descriptions of products and services and markets and business processes (Thompson et al.). Market orientation and strategic planning have a symbiotic relationship resulting in the development of distinctiveness within competing organizations to provide one with a competitive advantage.

There are six organizational structure models that are variables in the alignment process with respect to structure. The purpose of this section, then, is to identify general structural types for organizations, not to detail the structural types, and to reference the structures to the alignment process for a better understanding of the complexities that exist when an organization attempts to align its ITS to organizational goals. The intent is to show the relationship between organizational purposes, via its formal structure (organization model), and a model for the successful completion of IT and business

alignment. These structural models are not the only ones that exist; there are variables and hybrids of these. However, these six represent 90% of all the structured organizations and businesses (see Table 1; O’Neil, Beauvais, & Scholl, 2001). The organizational structure denotes the division of tasks or the specialization of tasks to accomplish the mission of the organization (O’Neil, et al. 2001). Hierarchal command (organizational chart) is the graphic representation of the formalized power-authority-accountability structure.

O’Neil et al. (2001) hypothesized that the structure of the model is support for the organizational mission and the determinant of its members’ behavior. O’Neil et al. (2001) drew a relationship between structure and alignment. Table 1 is a general overview of the characteristics associated with these models. Job type is related to the expected responsibility of a position and the results. Hierarchy type is related to the type of accountability and authority structure. Change type is related to the tempo of modifications or directions for the organization, which is important to the flexibility of an organization to undergo change, yet remain effective and efficient.

Table 1. Overview of Organizational Structural Model Characteristics

Organizational structure	Job type	Hierarchy type	Change type
Mechanistic	Specific	Formal	Slow
Organic	Nonspecific	Informal	Transition
Bureaucracy	Specialized	Formal	Slow
Adhocracy	Specific	Formal	Rapid
Clan	Specialized	Formal	Flexibility
Cosmopolis	Nonspecific	Formal	Slow

Business Command Structural Models

This section describes the common business command structure models that organizations use. The models listed are not the breath on model used by organizations, from these models hybrid models are developed to meet the economic and social environment of the organizations location(s).

Mechanistic Model

Members of organizations based upon the mechanistic model (O'Neil et al. 2001; Robbins, 2003) perform tasks that are not complex. Therefore, IT department support may be complex for hardware and software considerations relative to employees' needs to accomplish their tasks and communication needs. The IT department model may resemble the authoritarian model described later in the IT Department section.

Organic Model

Members of organic organizations have specialized knowledge, experience, originality, and expertise (Robbins, 2003). The needs of this model necessitate shared responsibility and shared domain knowledge. Therefore, the best fit is be an IT department model that resembles the authoritative model described later in the IT Department section.

Bureaucracy Model

This model is represented as an organization possessing the mechanistic management style (rules, laws, regulations, and hierarchy of management; Reich & Benbasat, 2000). The bureaucracy model can exist inside other models. Some of the best examples of this are the U.S. Department of the Treasury Internal Revenue Service and

accounting departments of large companies. The existence of these rules is support for the purpose of the department or agency. The needs of this model necessitate shared responsibility, shared domain knowledge, and connections between business and IT planning (Reich & Benbasat, 2000).

Adhocracy Model

This model (O'Neil et al., 2001) is marked by the distinct characteristics of its members having to perform complex tasks. This model is designed to accept members who have invested a number of years developing the skills needed in this type of organization. The organizational goals and objectives necessitate that these members are special. This type of organization model can also exist inside another larger organizational model.

Clan Model

The members of this model have specialized skills. The organizational culture is well defined, and each member is expected to perform at a high level (O'Neil et al. 2001; Thompson et al., 2005). Within the organizational culture, each member is provided with direction and the expectations of solving problems.

Cosmopolis Model

In this model, some of the tasks performed by its members are low tasks performed with little supervision; therefore, in this model, the organization can be dispersed over a large geographical area. The leader must define and identify each team member's role and responsibility.

ITS Architectural Variables

In this section, three IT department models (laissez faire, authoritarian, and authoritative) will be defined and described. Table 2 shows the relationship between the organization model and the task-technology fit, as mentioned earlier, depicting the relationship of the four phases of the organizational life cycle to the (a) organizational focus, (b) IT structural model, (c) resource allocation, and (d) governance model.

Table 2. Matrix of Organization Model and Task-Technology Fit

Organizational phase	Organizational focus	IT structural model	Resource allocation	Peterson's IT governance model
Introduction	Business concepts	LF/ATN	N	D/C
Growth	Adding value	ATN / ATE	P/SR	D/F
Maturity	Maintaining value	ATE	SR/P	F/C
Decline and revitalization	Adapting to change	LF / ATN	N	C/D

Note. IT structural models: LF = laissez faire, ATN = authoritarian, ATE = authoritative. Resource allocation: N = need , P = policy, SR = shared responsibility. IT governance models: C = centralized, D = decentralized, F = federal (a hybrid of centralized and decentralized models).

Organizational focus is the type of attention to the business process with which the organization is concerned. The IT structural model is focused on the IT model that is the best fit at that stage. Resource allocation is the deployment of technology investments, infrastructure, personnel expertise, and application usage. The governance model is the decision-making process in which the organizational focus, the IT structural model, and resource allocation are defined.

Also in the Table 2 matrix is the governance architecture that is best aligned with the other four variables. Please note that there is no one perfect fit in regard to IT

structural models, resource allocation, or governance models. Two model preferences displayed indicates possible morphing from one model to the other model (i.e., the first model going to the second model). In terms of IT governance models, centralized decision making occurs when all decisions are made from a command center. In the federal model, a hybrid of the centralized and decentralized approaches, decisions concerning the infrastructure and supplies are centralized and decisions concerning application and use of technology are decentralized. In the decentralized model, all decisions are made at the local level.

The Laissez-Faire Model

The laissez-faire model is the simplest of the three models because there is neither structure nor guidelines for the IT staff. In this model, the end user controls the selection of projects and allocation of department resources. This model does not have any support systems established to recognize or assist the organization or business in attaining its goals (Lackey & Brown, 2002; Wingreen et al. 2003). This type of model is mostly found in the creativity of the start-up phase of the organizational life cycle (OLC) in which there is no well-defined, written mission statement or a distinct purpose that has been developed (Lackey & Brown). However, this is not to say that there are no organizations whose IT departments are not operating under this type of model. The effect of this model functioning within an organization will be little or nothing being completed; therefore, the IT department will never be successful. This model is almost always employed in the start-up phase of most organizations, regardless of the structure (Lackey & Brown).

The Authoritarian Model

The authoritarian model could be classified as a reaction to the laissez-faire model. In the authoritarian mode, the department manager makes all the rules related to the IT department without consultation or consideration of organizational goals. Adoption of this model might result in just as many problems as are ignored in the laissez-faire model (Davern, 1996; Wingreen et al., 2003). This model is over extended in organizations and businesses that have security as the prime directive (Davern). According to Quinn and Martin (1994), Swanson (1988), and Sabherwal and Kirs (1994), controlling exposure often lowers productivity through decreasing innovation and creativity. In this model, there are no shared responsibilities or shared domain knowledge; therefore, ITS staff and organization staff have no defined collaborative policies that can be followed or supported (Scott, 2003). This model, like the previous one, has minimal association between the organizational mission and the ITS structure (Lackey & Brown, 2002).

When structure is addressed in this present study, it also includes policies, procedures, and resource allocations. Policies are the written standards of practice, procedures are the collection of processes used to support goal attainment and to focus decision making, and resource allocation is the deployment of assets to produce effective project results (Scott, 2003; Lackey & Brown, 2002). In this type of model, the organization mission either is not understood or is in a constant state of instability (Swanson, 1988). Neither laissez-faire nor authoritarian models can result in success over extended periods of time. However, they do result in some organizational support relative to the position of the organization on the OLC (Swanson).

The Authoritative Model

In the authoritative model, responsibilities are shared between the IT department and the business unit. According to Lackey and Brown (2002), DeLone and McLean (1992), a measure of success for IT investments is the collaborative processes between the parent organization and the department. The preponderance of the literature devoted to IT investment and success indicates department structure is the key to the ITS value and to organization or business success. This model is only one of three models that which focus on the structural environment to provide the means for the relationship between the parent organization and the IT department to become successful. Table 3 shows an overview of the parent organization structure and the IT department structure. The relationship between organization and department fit is represented in the form of possible scenarios. Whether a particular organization model is support for a certain department model is noted by either yes or no. As indicated in Table 3, all organization models will be support for the authoritative model, which is the precursor to the formal IT governance architecture.

Table 3. Organization and IT Structural Alignment Matrix

Organization structure models	IT department structure models		
	Laissez- faire	Authoritarian	Authoritative
Mechanistic	No	Yes	Yes
Organic	Yes	No	Yes
Bureaucracy	No	Yes	Yes
Adhocracy	Yes	Yes	Yes
Clan	Yes	No	Yes
Cosmopolis	Yes	No	Yes

Rational, Natural, and Open Paradigm Models

Information Technology Services operates under a formal command structure (Scott, 2003). This command structure contains a department director who directs the resources and expertise of the department to accomplish stated objectives in direct support of the goals of the parent organization. Because of the duality of responsibilities for the director, the structure must be adaptive to the technical complexities (Scott, 2003). First, there are the technology responsibilities (diversity) to investigate and integrate technologies into the organization in support of the goals of the parent organization. Second, there is the IS responsibility (complexity) to implement electronic and digital systems with the capacity to store, retrieve, analyze, and report data. Greater focus of resource and attention to tasks can be achieved through the division of responsibilities.

Closed System

Thompson et al. (2005) argued for a “closed system of logic—closed by the elimination of uncertainty” (p. 11). One means of eliminating uncertainty or ambiguity is to develop policies and procedures to govern behavior. The IT governance is the written policy and procedures document for guiding and directing the actions and deployment of personnel and resources in support of the goals of the parent organization, which can be measured according to its effectiveness and efficiency (Kuhn, 1996). Effectiveness is the supportive influences used either to create or to sustain competitive processes that must be managed so that the parent organization can compete in the market place. Efficiency is the strategic improvements that result in increased productivity and performance of the parent organization, such as work-flow design. The components of ITS (hierarchical command structure, divisional of labor, role and task descriptors, and written policy and

procedures) are the basis for a rational-legal authority to support the purpose of the parent organization and direct the strategic planning process (Scott, 2003). Given the nature and scope of ITS, the governance document used to reduce uncertainty and support the decision-making process must be a dynamic document because of the rapid changes in technology services. As such, there needs to exist an informal group of nontechnical individuals structured to review and recommend changes to any process or procedure not in alignment with the strategic planning (rules) of the parent organization.

Natural System

Scott (2003) and Kuhn (1996) argued that organizations are collectives of expertise and self interest. Scott also discussed behavior from a functional analysis perspective in which the consequences are the central element of the cause of that behavior. This is the functionality of organizational ITS with respect to the creation and or development of its natural system in which the uncertainty of role and task responsibility and the lack of policies and procedures result in an environment in which members of ITS develop procedures counterproductive to the achievement of the organizational goals. He further argued that the components of ITS behavior are influenced by innovative technology possibilities and economic viability, citing interest and control as triggers for these influences.

Open System

An open system in an organization is one that is acceptable and susceptible to internal and external environmental influences. The ITS open system is classified as cybernetic by Scott (2003) in terms of perceived self-regulating property (i.e., adjustments to the environment and references in the IT governance, a decision-making

tool) described earlier in the Rational System section. As technologies evolve and the introduction frequencies between innovations decrease, the organizational ITS structure will increase in complexity, becoming more variable and reactive to its environment (Scott).

This critical analysis of the three organizational paradigms in operation within the ITS of an organization is illustrative of the functionality and interdependence of its units via its structure (rules), the benefit of balancing formal and informal influences (focus), and ITS abilities to adjust to its environment (reactive). The management of these structural variables is contributory to a successful ITS structural foundation to support the alignment process.

In this chapter, the researcher has highlighted the complex management task necessary to coordinate and integrate the many activities of the ITS with the behavior of the organization to create and maintain the alignment necessary to increase competitive performance. Chapter 3 has been focused on the methodology of collecting, analyzing, interpreting, and drawing conclusions from the intersection of the research literature and the perceptive responses of the participants. The following section includes information from the literature in support of the methodological approach that will be used in this study.

Methodological Approach

A research method is a means of examining a subject or topic to answer questions of concern relative to a function. Methods are used to standardize an approach to a problem (Cooper & Schindler, 2006). The content of this section has been focused on the selection of the qualitative method, specifically the case study approach, to investigating

the critical dimensions involved in shaping the business and ITS alignment process. This approach has been selected because one may “examine a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities (people, groups, or organizations” (Benbasat, Goldstein, & Mead, 1987, p. 371).

Theoretical Literature

The case study approach is focused on reasons for a particular behavior through the interpretation of the perceptions of the actors involved in the activity and what governs their actions. In this type of investigation, researchers utilize direct observation of the behavior in question. Unlike a quantitative investigation, there is no empirical judgment obtained or sought (Cooper & Schindler, 2006). Creswell (1994) listed nine characteristics that are incorporated in a qualitative methodological approach: (a) natural setting, (b) researcher as key instrument, (c) multiple sources of data, (d) inductive data analysis, (e) participants’ perceptions, (f) emergent design process, (g) theoretical lens, (h) interpretation, and (i) systematic or holistic accounting. Creswell argued that the qualitative researcher employs the case study approach when investigating a process, or activity. Creswell suggested that the use of qualitative methodology usually involves complex interpretation of motive and its relationship to behavior. The investigation of business and ITS alignments involves multiple dimensions, sub dimensions, and the complexities of interactive process as described in the literature review. Benbasat et al. further argued that the appropriateness of the case study is framed by three questions the researcher must address prior to committing to the approach: Can the event, group, or organization be studied outside its natural environment? Does the investigation have to

focus on current events? Is there an established theoretical basis? Marshall and Rossman (1999) used a funnel metaphor to describe the results of task, role, and actors. They argued that the systematic examination of the results cannot be easily concluded outside the environment or without understanding the motivation or perception of the actors involved in the event.

According to Miles and Huberman (1994), when collecting data for qualitative research, the sample is often based on the most appropriate people to answer the specific questions. Because statistical significance is not the objective, the qualitative researcher is not concerned with a random sample of a specific size (Cooper & Schindler, 2006). To increase validity, qualitative researchers often collect data from multiple levels and functions within an organization (Robson, 2005). A qualitative researcher will also collect data from multiple sites when attempting to develop a general theory (Miles & Huberman, 1994). Development of a general theory is not the focus of this research, but validity and reliability are a concern. Therefore, in this study, the researcher will collect data from multiple levels and functions within the organization.

One advantage to using the qualitative approach is the ability of the researcher to identify an explanation for what is observed and to adjust the research design to incorporate additional information. Another advantage is to explore the perceptions and belief patterns of the actors as reference points for the observed behavior patterns to suggest the reasons for the ITS and business interaction or the lack of integrative activity (Miles & Huberman, 1994).

One disadvantage to using the qualitative approach is the required level of detailed explanation and description of structural components of ITS and business to

establish a logical process, a ladder of abstraction. Another disadvantage is the lack of consideration for certain events or activities. In the quantitative approach, researchers do not consider alternative explanations or alternative relationships between variables (Robson, 2003).

Applied Literature

Johnson and Onwuegbuzie (2004) argued that there is no one methodology that will be appropriate for all investigations. Cepeda and Martin (2005) presented the argument that, in an investigation in which one is seeking to examine the why and who of a situation, the qualitative approach will serve the research best. Through the questions related to the why and who, the investigator can understand the complexities and scope of the activity or event. Cepeda and Martin added that the qualitative method will not work in all ITS inquiries but is best suited when the intent of the investigation is directed toward explaining attitudes and behaviors. Because of the adaptive quality of the qualitative approach, the researcher can explore multidimensional components (Grunbaum, 2007), using separate and distinct dimensions to describe an object or event as it relates to the purpose of the research (Hurmerinta-Peltomäki & Nummela, 2006).

Chan and Reich (2007) argued that one of the challenges in attaining alignment is the “lack of awareness or belief in the importance of alignment” (p. 299). The perceptions of the business unit actors and the IT actors are important in advancing the process of alignment. Without a clear understanding of the motivational factors that contribute to this lack of awareness, the solution may remain hidden. The interview process will be focused on probing for perceptions indicative of the intent of the actors (Cepeda & Martin, 2005). Tallon, Kraemer, and Gurbaxani (2000); Sarker and Lee (1998); and

Watson (1990) used the qualitative case study approach to identify and describe business design processes, specifically the perception of the actors involved in operational tasks. These studies showed the importance of the perceptions of the actors with regard to desired outcomes.

Sarker and Lee examined complex activities with regard to the redesign effectiveness of IS implementation success. Watson (1990) explored the premise that IS managers' perceptions of key IS issues are determined by inside and outside influences. Because these studies were multidimensional and complex, they had to be investigated within the confines of the actors' environment; therefore, the case study method was appropriately selected. Orlikowski and Gash (1994) used qualitative methodology with a systematic approach to examine the perceptions people have about the use of technology. They argued that understanding the assumptions, expectations, and knowledge people have about technology is central to the development of technology. Again, the focus of this study is to understand the perception of the actors to describe the expected outcome of an event. Therefore, the researcher will utilize the approach and techniques outlined in this section. The details of the methodological approach for this study have been provided in chapter 3.

CHAPTER 3. METHODOLOGY

Research Design

In this qualitative study, the researcher will employ the systems approach as defined by Scott (2003), an approach that is focused on explaining the integration of the key components (i.e., content, process, strategy, and structure) involved in shaping the business and ITS alignment process, specifically the integration of ITS with the goals and objectives of the organization to sustain a competitive advantage that is the focus and structure of the system as suggested by Scott. The systems approach will be used to describe the interactive behavior of the content, process, strategy, and structure that exist between the business units of the organization and ITS. This theory is in direct opposition to some studies in which the parent organization is cited as being dependent on the ITS for the creation of value for the organization, implying a part of the organization is more important than the sum of its parts (Brynjolfsson & Hitt, 2000; Mooney et al., 1996; Seddon, Graeser, & Willcocks, 2002).

This study will use a qualitative methodology. The focus of this research will be the description and explanation of the interpersonal behavior associated with the process of ITS activities and organizational goal achievement or organizational performance. Triangulation will be employed in the research to establish validity and reliability. This method will be detailed later in the chapter.

Non-empirical research is defined as the examination of observations that are subjectively analyzed by the observer (researcher), as suggested by Cepeda and Martin, 2005. Vessey, Ramesh, and Glass (2002) classified this type of diverse research as externalist in nature. They contended that the influence for the non-empirical research

issue or topic is not motivated as a result of scientific progress but of a “fragmented adhocracy” (Vessey et al., 2002, p. 132). This present research study will also be a non-empirical investigation motivated by the desire to identify, explain, and define the critical dimensions involved in shaping the ITS business alignment process.

Sample

Marshall and Rossman (1999) suggested that the selection process of the target population is important with regard to the focus of the investigation on the examination of the current environment. The target population will be selected from the four schools and one college of a small university in southern California. Interviewees will consist of 8 executives/ managers, 8 faculty, and 8 staff members for a total of 24 interviewees.

The interview respondents will be selected on the basis of their job responsibilities and knowledge of the organizational mission or purpose (Miles & Huberman, 1994). The selection process will ensure inclusion of executives, department heads, managers, and line employees. These respondents will not be identified by name or any other identifying information other than job category to support the coding process. The interview questions will be sent to each respondent prior to the interview date to facilitate and manage the interview process. The available organizational artifacts identified in the Sample section will be examined to separate fact from perception.

According to Medley (2001) and Berglund, Daniels, and Pears, (2006), multiple reference points are necessary in a qualitative investigation to provide and validate the responses; therefore, written artifacts that detail the activities of the business units and ITS will be used to validate the responses to the desired activities. These written documents will include, but not be limited to, business and ITS planning constraints,

statements related to convergence of technology and core business strategy, department strategy and goals, ITS expenditure analysis, ITS governance, summary of strategic objectives, summary of strategic directions, ITS infrastructure analysis, ITS steering committee recommendations, and analysis of available options.

Members of the target population will receive letters detailing the role of their participation and a list of the questions (Appendix A). The list of questions will be provided to facilitate management of the time for each interview. According to Berglund et al. (2006), the interview is a time-consuming activity and the researcher should accommodate the interviewee as much as possible to manage the time and the process. One such means is to provide interviewees with an advance copy of the questions.

Instruments and Measures

The sources of information for this research will be current literature, face-to-face interviews, and written artifacts of the organization. These sources are intended to identify and explore the various characteristics of a successful integration of an organization mission with ITS procedures, if any. Cooper and Schindler (2006) described measurement as an approach of selecting events that can be assigned numbers or symbols to allow the observer to track the event for the purpose of clarity and making predictions. This researcher employed an interview process in which respondents from different levels in the organization were selected as described in the Sample section: executives, managers, and line employees. In addition, the researcher will examine written artifacts for knowledge and intent of the business units and the ITS written procedures.

As suggested by Miles and Huberman (1994), qualitative measurement is intended to assess the scope and depth of responses and to explore observable events

through grouping the responses into similar perceptions. These perceptions are then used in an analysis process, described in the Data Analysis section, to support recommendations and conclusions. Because of the small sample size and the nature of qualitative research, interaction between the respondents and researcher is possible (Cooper & Schindler, 2006). With this approach, the researcher focused on the perceptions of an event in terms of describing the behavior resulting in the outcome (Orlikowski & Gash, 1994).

This research focused on exploring

1. The presence of an integrative process by which information and knowledge of the organization can be accessed.
2. The expandability of the technology infrastructure and supporting collaborative efforts of the members of the organization.
3. The information systems service focus on scalability and extensibility of processes, the protection of knowledge, the agility and scalability of infrastructure, and the extensibility and scalability of the actors in the organization.
4. The administrative activities and organizational process and method-driven information systems.
5. The information systems service strategies for the deployment of hardware and software.

The qualitative approach of this investigation will necessitate the collection of perceptions by means of interview questions. Perceptions are based on belief and experience patterns and are often altered by time, information, and circumstance;

therefore, the collected data will be used to explain the interactions rather than to determine the cause of the interactions (Cooper & Schindler, 2006).

Interview questions (Appendix B) will be used to gather perceptive responses from the participants. Open-ended questions will be incorporated because the purpose of this research is to identify, define, and explore the behavior surrounding the activities associated with alignment of business and ITS (Cooper & Schindler, 2006). There are 8 questions designed to elicit perceptive responses to identify, define, and explore conditions, events, activities, and behaviors of the respondents with regard to the accomplishment of business and ITS alignment. These questions are grouped in series of three and are related directly to the six research questions. Interview questions 1 address the qualification to respond to the question and provide a temporal reference for the responses. Interview question 2 and the associated probes were designed to address RQ1, identifying the existence and functionality of the collaborative process in the organization and exploring the appropriateness of the process. Interview questions 3 and the associated probes were designed to address RQ2, defining and exploring the command structure of ITS with regard to the effectiveness of the structure in direct support of the organizational mission and discovering any alternative command structures that might be better support for the mission of the organization. Interview questions 4 and the associated probes were designed to address RQ3, defining and identifying the processes required to create and maintain the core business operational environment of the organization. Interview questions 5 and the associated probes were designed to address RQ4, defining, assessing, and exploring the knowledge or expertise created and used in the operation

of the organizational business environment. Interview questions 6 and the associated probes were designed to address RQ5, identifying and exploring the means by which the organization designs, develops, and promotes the information systems used to increase competitive advantage. Interview questions 7 and the associated probes were designed to address RQ6, exploring how efficiently and effectively the organization uses human resources during times of challenge. Interview question 8 designed to address any concerns that were not addressed that might add value to this research.

Data Collection

The researcher utilized face-to-face interviews using open-ended questions to collect individual perceptions about the observed phenomena outlined in the measurement plan. The researcher will also evaluate the organizational policies and procedures related to its goal achievement processes. The factual evidence for this study will be collected from existing organizational documentation related to the topic of this study, research studies conducted on this topic, and ITS artifacts. The research conducted by Golafshani (2003) will be utilized as a precedent for utilizing an interview process in a qualitative research study in which validity can be obtained by means of written documentation to support or refute the claims of the interviewees.

This technique will also be used to distinguish between primary and secondary sources of data. Primary sources are the responses to the interview questions; secondary sources are any previously published materials, include company reports, memos, letters, reports, e-mail messages, faxes, and newspaper studies, among others. Administrative or support personnel who depend on the alignment process to accomplish their tasks will be used as a third source of information to identify, define, and explore the effectiveness of

the alignment process between the organization and ITS (Miles, & Huberman, 1994; Sarker & Lee, 1998). The effectiveness of the alignment process between the organization and ITS is the basis of this study.

Data Analysis

The researcher used node analysis, as described by Medley (2001), for a practical data analysis process. Node analysis is a process in which the textual content of the respondents' replies to the interview questions are the focal point of the evaluation of the perceptions. In the process, these perceptions are categorized (coded) and grouped into similar patterns referred as nodes and themes. As previously discussed in the Sample section, the key critical components of the alignment process (process, content, strategy, and structure) will be used to group similar responses delineated to incorporate key identifying words or phrases to form the bases for the coding scheme referenced as themes, all of which is accomplished electronically. The NVivo® software package will be used for the analysis process. This software is designed to analysis textual data, specifically with the use of detailed interview question responses that appear to have no discernable relational patterns.

The analysis process will be focused on the recorded impressions of the participants and the artifacts of the procedures and processes of the organization. The data collected from the interviews will be focused more on the respondents' perceptual recognition; in the analysis of the data, the researcher will need distinguish between the factual and the personal judgment of the participants. Extracting useful patterns from the data will be necessary to develop a clear picture of the perceptions of executives, managers, faculty and staff. The written artifacts will be used to validate the respondents'

claims. When appropriate, and if necessary for clarity, descriptive statistics will be utilized. Benbasat et al. (1987) stated that the analysis of study data is heavily dependent on the integrative powers of the researcher.

Validity and Reliability

The terms validity and reliability are associated with the quantitative methodology research because of the measurement and quantifying of data. In the qualitative research methodology, data is collected but is not usually quantifiable in terms of numbers used to evaluate the quality of the argument (validity). Stenbacka (2001) argued that the quality of the argument still must be established in qualitative research by the purpose of the research and the clarity of the argument. Patton (2001) added to the discussion of the quality of the argument by stating that qualitative research must be concerned with defending the position of validity and reliability. Lincoln and Guba (1985) argued that the trustworthiness (reliability) of the qualitative investigation must be established but not necessarily in the same manner as in quantitative research methodology, indicating that complementing sources of information focused on the same event may be used to form different perspectives. Patton suggested a contrasting technique in which qualitative researchers use triangulation to strengthen the quality and trustworthiness of their argument by combining methods or data sources. The data validation and reliability methods to be employed in this study will be three complementary data sources (business executives, managers, and staff; ITS managers and staff; and written artifacts as listed in the Sample section) to establish the accuracy and dependability of the respondents' perceptions to each of the key critical component areas of the business and ITS alignment process.

Ethical Considerations

Due to the sensitive nature of the information collected during this study and the potential impact on the organization and the individual participants, it will be essential that there be no direct mention of the organization or the individuals who participate. The interviews will be conducted in the privacy of the individual's offices and will require about one hour to complete. Each session will be tape-recorded and stored in a secure location. The recording will be used to transcribe the responses and these written responses will be presented back to the interviewees for accuracy. Each interviewee will have an opportunity to review their responses to the question prior to data being used in the analysis. After the recordings are transcribed and verified by the interviewee, the recordings will be destroyed to preserve the anonymity of the organization and individuals. Only individuals significant to the analysis of the data, the mentor and the committee members will have access to the data.

CHAPTER 4. DATA ANALYSIS AND RESULTS

Introduction

The research site is a university located in southern California and founded in 1950. In 1998, the institution gained its university status. The university has an enrollment which exceeds 4,000 students, with 90 undergraduate majors and concentrations and 25 graduate majors and credentials programs. The university is a private institution which relies on donations and enrollment fees as its primary revenue stream. The university must operate within a sound business model and the framework of a higher education institution. This chapter incorporates the 24 responses to the eight interview questions and probes with regard to the research questions.

This research focused on identifying the critical dimensions that shape the business and information technology alignment process; a process that the university must employ to maintain its relevancy as a growing entity in the field of education. This research addressed six research questions.

RQ1: What collaborative activities should leaders of the organization and ITS employ to increase organizational performance?

RQ2: How should organizational leaders structure ITS for a better supportive role in creating and sustaining a competitive advantage among its competitors?

RQ3: How should organizational leaders structure required procedures and processes for business and ITS in support of the core environment of the organization?

RQ4: How should organizational leaders manage business and ITS knowledge used in the operation of organizational business ventures?

RQ5: How should organizational leaders create and manage physical information pathways of business and ITS while creating competitive distinctiveness for the organization?

RQ6: How should organizational leaders use internal and external human resources of business and ITS to develop a competitive advantage?

Data Collection Plan

Subsequent to IRB approval, a pilot study was conducted with three individuals, one from each of the potential participants' group (executive/manager, faculty and staff). This pilot study indicated a need to reword interview questions for clarity and removal of researcher bias. Eight questions were developed and tested with the same three individuals. These questions were supported with probes to elicit in-depth responses concerning the four critical dimensions of this research – content, process, strategy, and structure.

Table 4. Summary of Interviewees' Perceptive Views as Related to Role

Participants Perceptive views	
Perceptive view	Count
Executive/Manager	8
Faculty	8
Staff	8

The questions were asked in 24 face-to-face interviews that were conducted in privacy and confidentiality and lasted for an average of 26 minutes. The interviews were conducted with three primary internal stakeholder groups; executives/managers, faculty, and staff (see Table 4 for breakdown by role). The students of the university were considered customers for this research and would not have a perceptive frame of

reference to identify and comment on the business objectives and ITS's role in the accomplishment of the university's objectives; therefore, were not included in the research process.

The nature of the questions required a perceptual response and was of low risk to the participants in regards to the protection of their employment. The small working environment of the university produced a situation where certain phrases and or words could readily identify participants, removing their confidentiality; therefore, direct quotes are used with care as to not expose the participant. All participants provided detail and some examples for questions, and some participants provided great detail with examples only with the assurance that their identity would be anonymous. There was never any information discussed during any of the interviews that was inflammatory, disrespectfully or negative with regards to any individual(s) or the university.

Data Analysis Approach

As discussed in the data analysis section of chapter 3, the researcher used node analysis, as described by Medley (2001). The NVivo® 8.01 software package was used for the data analysis process. The interview questions were designated as nodes in the data analysis process. The nodes were then subdivided into perceptual themes which were grouped in accordance to either an affirmative or negative response. Each positive or negative response was further broken down, relative to the degree of detail and a common statement based on an association with key word(s) within the responses was used for these groupings. Organizational documents such as the Comprehensive University Plan (CUP) the university's strategic planning document, ITS governance documents (best practices guidelines), and policies and procedures related to help in

support of software, hardware, and infrastructure. The written artifacts were used to validate the respondents' claims are appropriate. The next section will present the findings of the interviews.

The Findings and Analysis of the Research

This section presents some of the key responses to the eight interview questions, a short analysis of the findings and a node analysis of interview questions 2 through 7.

Research Interview Question 1

This addressed the qualification to respond to the question and provided a temporal reference for the responses. As discussed in Chapter 3, one of the qualifications for participating in the study was the minimum of two years full-time employment with the university. The participants' employment ranged from 2 to 20 years, with an average of 9.8 years. The average is important, given the transition from a college to a university in the fall of 1998 (11 years); and, that 16 of the 24 participants were employed after the transition to a university. Therefore, 66% of the perceptive responses are influenced by the general planning directive of 8,080 full-time enrollments in the year 2020 (8080 in 2020), the essence of which is detailed in the annually updated CUP strategic plan and the proliferation of technology into the university (see table 6).

Analysis of Interview Question 1

The CUP is structured with five strategic plans financial, foundational, physical development, education, and technology. Due to the technology's prominent position in the strategic planning process of the university; technology is presumed to be an important component in the achievement of the university's mission and goals. Therefore, the integration of the university's business model and the supportive functions

of the ITS would seem to be in the best interest of the university and the supportive activities of the ITS. The CUP is updated each year by the executive council and approved by the governing board of the university. This document is the platform which directs the business relationship between the university and ITS. This document was very important with regards to the degree to which question two received a positive response.

Research Interview Question 2

Twenty-four participants answered yes, with different degrees of a collaborative process, ranging from good with slight modifications to major procedural changes. Participant 7 stated "no" not at the faculty/staff level "because, in many instances, one [university] doesn't know what the other [ITS] is doing, nor appear to care" (Personal Communications, June 8, 2009). Participant 7 added this example, "I had a resource issue and people from ITS came and discussed the issue. This was a year and a half ago and no one ever got back to me, ever". Participant 4 stated:

Okay, I suppose I would say that if there was, I don't know if I want to call it that, but maybe at the department chair level, the department chairs are informed that if you guys have something then please bring it to us and we can come and meet with a group from your department and speak with you on that. (Personal Communications, June 11, 2009)

Participant 14 stated "I don't feel there is collaboration between our administration and our Information Technology Services Department; it is . . . assisting students, faculty and staff to help promote the mission of the university" (Personal Communications, June 9, 2009). Participant 14 addressed the process, strategic and content issues with, "I think by and large there is collaboration, I do believe there is a disconnect. Because I think that we haven't maybe addressed some of the funding needs that they have, both for technology and for the human resources" (Personal Communications, June 10, 2009). To better

understand the complexity and importance of collaboration Table 5 is offered as the example of the proliferation of technology in the university from 2001 to 2009.

Table 5. Technology Proliferation at University from 2001 to 2009

Proliferation Activity	Spring 2001	Spring 2009
Resident Students Computers on Campus	276	1200
Internet Access Bandwidth	1.5 Mbs	70 Mbs
General Use Computers	22	100
Network Devices	30	127
Classroom/Lab Computers	80	255
Email Accounts	775	8075
Servers	15	59
Systems	8	24
Wireless Access Points	0	39
Network Storage	900 Gbs	62 Tbs
Technology Enable Classrooms	4	35
Remote Site Support	2	5
University Provided Student Laptops	0	310
Cable TV Drops	390	7400

Source: University's CUP dated March 2009.

Analysis of Interview Question 2

Table 6. Node Analysis Results for Interview Question 2

Theme	(+)	(-)	%
There is some form of collaboration	24	0	100%
Good collaboration between ITS and departments	2	22	8%
Good collaboration between ITS and executives/managers	24	0	100%
Poor collaboration between ITS and the departments	23	1	96%
Value is added to the university by what I contribute	24	0	100%
Little or no strategic input at the department level to ITS	19	5	79%

Note: n= 24; (+) positive response to the theme; (-) negative responses to the theme; (%) is the percentage of positive responses.

All the participants (100%) recognized collaboration in some form. The majority of respondents 96% acknowledged the need for the business units and the ITS to synchronize their activities to insure the university achieve its core business model, that of higher education, and the achievement of 8080 in 2020 goal. The responses indicated there is a belief that some activities of ITS is not directed toward understanding nor supporting the activities of managers, faculty and staff with 79% citing the need for more input to ITS from the department level. All respondents believed that they contribute positively to the overall performance of the university. This highlights the fact that the participants appear to accept their roles and responsibilities; but it also illuminated the disconnection between a positive voice in the development of supportive systems and how technology is used and implemented within their departments. Participant 5 addressed this concern from a process and content perspective with, “Yes, there is collaboration, the degree of which is probably not up to the level that it probably could be or should be”, adding “they’ll pull committees together and then it sort of gets pushed aside” (Personal Communications, June 10, 2009). This lack of follow-through is evident in the 79% who believed there is little or no strategic input at the department level, which materialize into activities that can be interpreted as weak support for goal achievement at the department level (Scott, 2003).

Research Interview Question 3

This question focused the discussion on support to achieve and maintain competitive advantage. Participant 1, the only dissenting voice stated:

I don’t think leadership support can help create competitive advantage. We’re about good teaching but not technology enablement; I never hear discussion about technology enablement being a part of good teaching. Well I think it’s perfectly

aligned, in that information technology is not important strategically to this university, so therefore, I believe the lack of dollars, the lack of time, attention, resources of other kinds is a perfect alignment with the strategic emphasis of the talk. (Personal Communications, June 9, 2009)

Participant 3 stated:

I was amazed how other schools were strong on their commitment to ITS, because they knew they were going to rollout distant learning programs, . . . they put in the infrastructure, they put fees in place with the students for some of that but they delivered for those fees (Personal Communications, June 24, 2009).

Participant 16 addressed the concept of process and strategy like this:

Yes, most definitely . . . we've identified some goals, 8080 by year 2020 but what does that really mean. And, will the ITS infrastructure handle 8080 students by the year 2020 and what is that product and service that we're delivering in 2020, is it still a traditional environment or are we into a whole different product and presentation material. (Personal Communications, June 10, 2009)

Participant 11 also focused on the process and strategy of the question by responding:

I don't think we are where we should be to be competitive either with the outside world of bringing students in and saying this is what we have and this is compared to such and such a school, uh does that make sense? So I don't think we can use our IT level to say we are up to speed with such and such a school. I really feel like we fall very short of that. (Personal Communications, June 3, 2009)

Participant 5 offered two possible scenarios for change in the supportive role of the leadership:

So I think there's two separate ways that they may go about doing it, but both will have to lead to change, one, I think they both demand real infrastructure changes and improvements, but one of them involves a whole scale changing of your human resources as well, retraining and attitudes and everything. The other one [way] you sort of run it as an off shoot of your present position and only involve select people in it and if I were a gambling man that is the direction that I would guess they are going to attempt to go but I don't know, it will be interesting to see. (Personal Communications, June 10, 2009)

Analysis of Interview Question 3

Table 7. Node Analysis Results for Interview Question 3

Theme	(+)	(-)	%
Leadership support will help	23	1	96%
No leadership support for content development by ITS	14	10	58%
Support for content development by the university	24	0	100%
Acknowledges importance of ITS at the department level	9	15	37%
Value is added to the university by what is done by ITS	24	0	100%
Value is take away from the university by what is not done by ITS	14	10	58%

Note: n= 24; (+) positive response to the theme; (-) negative responses to the theme; (%) is the percentage of positive responses.

One participant believed that leadership support would not help the competitive performance of the university, citing the lack of recognition of "technology enablement being a part of good teaching" (Participant 1, Personal Communications, June 9, 2009). The School of Nursing' website video proclaims the extensive use of technology in its teaching modality, and emphasized the partnership of technology and the science of nursing as a necessity for retention and comprehension of nursing knowledge. The supporting documents did not support Participant's 1 view. The reminder of the participants (96%) recognized the need for leadership support, but only (62%) believed the support was neither direct in terms of focus and attention, nor in terms of distribution of financial resources to support the objectives of the CUP. All the participants believed there is an important role served by ITS and its activities which are strategically defined in the CUP; but was not practiced. There was a perception held by 14 of the respondents (58%), that the university losses value by what ITS does not do (practice), therefore, the competitive advantage is lost as a result.

The CUP defined the public acknowledgement of the importance of technology within the university by either referencing the need, or the use of technology to support the direction and achievement of the university's goals and objectives. Scott (2003) argued that there are two positions an organization has with respect to goals and objectives, public and private. The public position, that which is written, and the private position, that which is practiced. The ideal case is when they are the same, but reality which can be framed by political and or financial restraints which create the public and private positions for the university as described by Scott. Scott also discussed the creation of an adhoc environment, where the role definitions are blurred and members attempt to perform in roles out of their areas of expertise. This was identified by a number of respondents with regard to the 8080 in 2020 goal – the platform on which the revisions of the CUP was based. The written position does not match the activities with regards to accomplishing the goal. In chapter 5 recommendations, the research addresses the public and private position as an operational event.

Research Interview Question 4

This question focused on the structuring and implementation of policies and procedures to support the competitive nature of the university. Participant 6 believed there are some policies and procedures in place to support the goals of the organization, but felt they were not always followed or implemented, stating a need to, “get those policies and procedures written and implemented so it is not bogging down the system, with people trying to figure out who's doing what” (Personal Communications, June 10, 2009). Participant 20 addressed the process and strategy dimensions when stating, “I'm not an IT person, but why do the computers have to go down for maintenance so often

during work hours? Why can't it be done after or before work hours” (Personal Communications, June 8, 2009). Participant 14 offered this illustration of the development and implementation of policies and procedures when stating:

I think we're lacking. Some policies are, but some policies aren't and I think I'd like to be more involved in the dialogue in creating these policies verses them being implemented and say here we have to live with them now. Sometimes the policies are just given to me and say these are the policies. Let's reverse and have the conversation first, understand venues and how that affects us and the implications for us. I think they also have some policies that are different from the faculty staff than they are students, and that you can't have blanket policies to affect both. Students are very different than a full professor or dean or VP or a secretary. They have to be different and their needs are different. (Personal Communications, June 9, 2009)

Ten other participants' voiced similar sentiments with regard to no voice in the design and the forced acceptance of the policies and procedures. Participant 19 offered a very interesting perspective on the design, development and implementation of policies and procedures stating:

I think both are. I also think there is significant room for improvement for both. I'm not privy to whether or not IT issues are adequately considered in strategic discussions, strategic planning. IT has a chapter in that CUP, and that chapter, this is an interesting aspect of the question, that chapter is on the same level as the education plan, the institutional development plan, the finance and administration plan and the, I'm not sure of the term, property plan the physical plant plan. So the fact that it's on the level, is a very significant positive aspect of its place in the strategic planning of the institution. There has been discussion, shouldn't the director of IT actually be a VP. And, I highlight that as both a question that has been discussed and one that should continue being discussed. If there was a VP for ITS, that would force more strategic attention to ITS in terms of strategic planning. (Personal Communications, June 24, 2009)

Participants 1, 3, 6, 7, 14, 22, 23, and 24 offered similar perspectives with regards ITS involvement at the executive level, not being a member of the executive body, yet having a significant role in supporting the strategic planning and implementation process.

Analysis of Interview Question 4

Table 8. Node Analysis Results for Interview Question 4

Theme	(+)	(-)	%
No procedure for content development through ITS	23	1	96%
Most of the procedures and policies of the university are followed	18	6	75%
Some ITS procedures are listed of the university's website	17	7	71%
No knowledge of written policies for ITS	20	4	83%
Policies and procedures are designed to support the university's goals	13	11	54%
The procedures of ITS are designed to support the university's goals	6	18	25%
No ITS representation at the executive level	9	15	37%
There is a way to improve policies and procedures to become more competitive	24	0	100%

Note: n= 24; (+) positive response to the theme; (-) negative responses to the theme; (%) is the percentage of positive responses.

It is assumed there are policies and procedures to direct the activities of the ITS, but this researcher could not find any publicly accessible written policies that govern the activities of ITS. During the interview process this researcher was informed that procurement policies were pending, and will be accessible to all university employees. This supported the belief held by 20 respondents (83%) who stated they had no knowledge of any written ITS polices. Some respondents, 17 of 24 (71%), believed there are some procedures of ITS on the university's intranet site, because of the Help Desk reporting site for hardware and/or software problems. Investigation of the site revealed the Help Desk was listed in the announcement area for ITS with a phone number, but no link to any procedure. Some respondents 18 of 24 (75%) reported that most of the policies and procedures of the university were being followed. The 6 respondents (25%) that did not believe most of the policies and procedures were being followed held the same belief pattern as Participant 14 – forced acceptance without input. Another interesting belief pattern that emerged from the interviews was that only 13 of 24 (54%)

acknowledged that policies and procedures were designed to support the university's goals, which can account for only most of the university's policies and procedures being followed. All of the respondents believed that there are ways to structure and improve the policies and procedures for the university and ITS.

Research Interview Question 5

This question also focused the discussion on the management of proprietary knowledge. Participant 1 stated, "I guess the answer would be no for ITS, and no for the university too. I believe the university attempts to become competitive in a number of ways, but information technology knowledge is not one of them, and is not of strategic interest to them" (Personal Communications, June 9, 2009). Participant 4 offered an example of how this is not being managed, stating:

I got some equipment for doing . . . experiments. I needed . . . computers, two laptops, but the first stop they made was IT, and I don't know what they did, I can't run the software. I've had IT people out 8 to 10 times to look at it and it doesn't work with the equipment. I've been going back and forth to the company and IT and I think I have found somebody at the company who said here's what they (ITS) need to do and it has to do with something they (ITS) missed. Now I use my own laptop to connect and I can't use it for anything else until I'm done with it. I don't know that those computers went through ITS, but that's a problem that can all of a sudden it becomes a hoop that messes things up rather than supports it. (Personal Communications, June 11, 2009)

Participant 5 addressed process, content and strategy dimension when stating:

I would say we are probably lacking in that area, because, for example, I consider myself a real novice when it comes to technology, I am not very well versed in it at all, and so I am a user of the things that I have to use to get through my day. But I would like to do more things, I would like to say hey how do I go about creating a storage database or clearing house for academic projects that students do that everybody can get access to, the whole class, I don't want just a live text, where [professor X] students can get at all [his/her] projects but I want my students to work on lesson plans in class and write an entire unit plan and then I want every student in the class to be able to access the unit plans. (Personal Communications, June 10, 2009)

Analysis of Interview Question 5

Table 9. Node Analysis Results for Interview Question 5

Theme	(+)	(-)	%
Content I add to the university I have to manage without support from ITS	20	4	83%
The university supports the management of proprietary knowledge and/or content	19	5	76%
The management of proprietary knowledge or content is important	24	0	100%
Some procedure of content management developed by ITS	3	21	12%
There are ways to manage content	24	0	100%

Note: n= 24; (+) positive response to the theme; (-) negative responses to the theme; (%) is the percentage of positive responses.

The majority of respondents 20 of 24 (83%) believed that they must manage proprietary knowledge or content on their own with no support from ITS. Proprietary knowledge or content (course material) appeared to be an area of uncertainty with respect to management for the majority of respondents, but an area that was recognized as an area that needed more attention on their part and the university. This was supported by the fact that 3 of 24 (12%) believed that there was some support provided by ITS when BlackBoard® is being used. The researcher found that course content for the faculty only is being managed. The supportive staff and administration is excluded from this type of management tool; because they do not use BlackBoard®. This supported the belief held by 21 of the respondents (87%) that there is no proprietary content management support by ITS outside of the BlackBoard® environment. All respondents believed that the management of proprietary knowledge and content is important. The majority of respondents 19 of 24 (76%) also believed that the university supports the management of proprietary knowledge and/or content. The faculty handbook, the policy and procedure document for the faculty, described a policy and procedure for the support of the

development of proprietary knowledge through the faculty development fund. The fund offers scaled assistance to full-time faculty to attend conferences and/or present their creative work at conferences; but the university does not manage nor support the management of these creative content ventures.

Research Interview Question 6

This question focused on how ITS services the university in support of goal achievement. Participant 1 stated:

No, the university . . . works hard not to have things like pathways, policies and procedures which tend to institutionalize things, making the university unable to adapt quickly, so it is the strategic decision not to have defined pathways. (Personal Communications, June 10, 2009)

Participant 2 gave this example of how information is one way and non-responsive from ITS, stating:

A system in our lab would reboot because an update wasn't done, it was in a frozen state and the IT guys insisted to me that wasn't case, and I said oh, I'm teaching in there so I'll tell you what the case is. So the students working on that system is now frustrated and done, because the system reboots and you can't control it. I've always seen this in IT as arrogance in years working in the business environment. (Personal Communications, June 17, 2009)

Participants 7, stated:

No. You see them but they don't seem to be consistent, or maybe there's always a problem when you look at a system and you're using logic and reason to judge the system and within the system there appears at times, to be no logic and reason, can you see the disconnect? I asked ITS to re-install ". . . put in a call two and a half weeks later I had a tech come over here and say, I'm sorry [X] won't work on this type of machine, I said if you check your records, you guys put it on six months ago, so why will it not work now? The tech said well I'll have to talk to my supervisor and get back to you and that was three or four weeks ago and still nothing. So, it's those types of disconnects that frustrate you. I understand they probably have labor issues, but it seems like we could get to a point where we are proactive instead of reactive. (Personal Communications, June 8, 2009)

Participant, 21 held a very different perspective of the establishment and maintenance of pathways, stating:

Pathways needs to be in place, but needs to have a certain degree of flexibility, but the trend [here] is towards rigidity. But then again on the other side there is an unrealistic expectation of flexibility. And so finding that balance I think is really difficult, a challenge. (Personal Communications, June 10, 2009)

This view point echoed the perception of Participant 1 with respect to the university's strategic direction of not wanting to be institutionalized.

Analysis of Interview Question 6

Table 10. Node Analysis Results for Interview Question 6

Theme	(+)	(-)	%
No ITS representation at the executive level	9	15	37%
ITS infrastructure does not fully support the university's goals	20	4	83%
ITS is designed to help the university succeed	8	16	33%
Not sure about the structure of ITS	10	14	58%
Can improve the structure of ITS	24	0	100%
Know who to contact, other than help desk, to get problem resolved	12	12	50%

Note: n= 24; (+) positive response to the theme; (-) negative responses to the theme; (%) is the percentage of positive responses.

All participants interviewed believed that good strong information pathways could contribute to the competitiveness of the university. All respondents acknowledged concerns with the command pathways ranging from the knowledge of a command structure that has not worked to help resolve problems, 12 of 24 (50%), to the belief that the ITS infrastructure does not fully support the university's goal, 20 of 24 (83%). There was an underlining belief held by all respondents that the information pathways could be improved to support the competitive nature of the university, but only 14 of 24 understand the structure of ITS which makes it difficult to get a consensus on how ITS should be restructured. This group reported the effectiveness of the 'help desk' that

started the dialog with ITS, but reported inconsistent and sometimes failure to respond in a reasonable time frame.

Research Interview Question 7

This question focused on the use of internal and external human resource and the university's ability to attract and retain qualified people. Participants expressed part of the problem as a budget restraint and participant 11 expressed it in this manner:

I feel like the turnover rate in that [ITS] area is huge, absolutely huge and for what they do and for what they're responsible for I think that's terrible, . . . and we've had some really good people and we've lost them, people who know what they are doing and seem to help and then you're kind of left with, and its nothing against them but they're not trained or they don't know what they're doing, or they're just students who are helping and it's not their fault, we don't have a good knowledgeable support base and the few that we have they are too few, there is not enough of them so the demand from the campus is huge on them. (Personal Communications, June 3, 2009)

Another resounding perception repeated is summed in participant's 5 remarks:

Sometimes people stay here even if they're not the best fit for a particular position. That's changing but so I think there's been a little bit of that in the area ITS and so I would say no that the human resources have not been maximized probably to the best that they could to accomplish those goals. Just having people may increase fit but if you're fit but ignorant it doesn't really help much. (Personal Communications, June 10, 2009)

The perceptive responses of Participants 11 and 5 are summative perspectives of the 21 who did not believe the human resource focus for ITS was being used to advance the competitiveness of the university. Participant 22 summed it best with this statement:

I think that the administration does an excellent job as far as creating the positions that are right for the university. So I think that human resources has been a great vehicle for us to use through the creation of [faculty] positions that really meets the needs of the university and meets the needs of the student and ultimately meets the needs of the community, but has fallen way short in regards to ITS – we have been asleep in that area. Again we need an ITS person at the executive table to push this. (Personal Communications, June 10, 2009)

Analysis of Interview Question 7

Table 11. Node Analysis Results for Interview Question 7

Theme	(+)	(-)	%
ITS is unable to find and retain good people due to budget	21	3	87%
ITS is unable to find and retain good people due leadership support	4	20	17%
Value is added to the university by what is done by ITS	24	0	100%
Value is take away from the university by what is not done by ITS	14	10	58%
Good retention of faculty and staff	20	4	83%
Outsource some ITS task is good for the university	22	2	92%

Note: n= 24; (+) positive response to the theme; (-) negative responses to the theme; (%) is the percentage of positive responses.

The participants perceived a problem in the area of human resources either internal or external with respect to ITS finding and retaining good people. The turnover rate within ITS is believed to have a negative impact on the competitive edge of the university (58%). A plausible explanation for this turnover rate is the growing gap between a decreasing supply (knowledgeable IT personnel) and an increasing demand (IT position available), and the budget restraints of the university. All respondents believed in the important role and responsibility ITS has in establishing the university's competitive position (100%). Further examination of the results focused on the inability of the ITS to find, hire and retain personnel. Where 21 of 24 (87%) believed it is the function of the budget restraints and 4 of 24 (17%) believed it is the result of the lack of leadership support. The most significant result is the 14 of 24 (58%) who believed that value is taken away from the university's by what ITS is not able to do. Therefore, if finding and retaining staff is a problem with respect to the cost of full time personnel, then outsourcing becomes an option to support the university's goals and ITS activities.

Research Interview Question 8

The focus and purpose of this question was to capture any impressions or opinions that were not expressly asked or overlooked by the interviewer. Participant 22 stated:

Well I'm very interested to see the university develop a major that is uniquely technological, one something like a computer science degree or an information technology or information systems degree. I believe that even in an economic slowdown people still need to have information technology professionals either in their organization on a full time in a full time role or working as consultants. (Personal Communications, June 10, 2009)

Participant 14 stated:

I think that we have to take a critical look at the system that we have in place the CX [student registration] system, is that meeting the needs of this university, the backbone of our entire system, is BlackBoard® the best for faculty, I think when you have a structure like IT, we start staffing that's an issue, is it should be a VP position that's an issue, but just the structure of how we meet the needs of this campus even if we don't make it a VP position, I think we have to look at the structure of how it's operating internally at [the university], and I think we would find some glaring holes in the structure. (Personal Communications, June 9, 2009)

Participant 7 stated:

You know that's a drag doing it that way, you can get it done but it's a lot harder, it's nicer when I've been at other universities where we had a major and you just pulled right from that major and they're getting real world experience to do what they want to do and so yeah we should be tapping into that for sure. (Personal Communications, June 8, 2009)

Analysis of Interview Question 8

Some of the respondents expressed a need to explore more content in the form of value to the competitiveness of the university. This content is expressed as re-introducing the degree major and an increased dialog about the creation and development of a vice-president of ITS. The degree program would offer students to work in a real world environment of a educational institution and the benefit to the university, would be

gaining a worker with the basic skills and knowledge to perform entry level tasks within the university's technology environment.

Trustworthiness and Reliability of the Data

The trustworthiness and reliability of the data was examined from multiple perspectives executive/managers, faculty, staff, and written documentation where available. The researcher collected the written documents as part of the research methodology to challenge the belief patterns of the respondents. The majority of the belief patterns, with exception of certain expressed biases by the respondents, were deemed to be reliable, and documents have supported claims with regards to trustworthiness.

Summary

The findings from the interview questions identified technology as a prominent portion in the strategic planning process and an important component in the achievement of the university's mission and goals. Additionally more attention and acknowledgement is required, given the critical role ITS plays in the success of the university. The findings also identified a greater necessity for collaboration between the different schools and college of the university, and ITS. The findings further identified that support is neither direct in terms of focus and attention, nor in terms of distribution of financial resources to support what is written in the CUP. Additionally the findings identified very few written policies and procedures which governed the activities of ITS. The participants perceived a problem in the area of human resources either internal or external with respect to ITS, had a negative impact on the competitive edge of the university. Additional investigation revealed the inability of the ITS to find, hire and retain personnel. The participants also

expressed the need to create a Vice-President of ITS position, and that major consideration be given to this aspect of the alignment process to stabilize the roles and activities of ITS.

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

Summary

In this chapter, the purpose of the research is stated, along with a restatement of the research questions. The research discussed the methodology used and why it was selected. In the discussion, the research questions frame the recommendations developed directly from the findings, followed by the conclusion.

The purpose of this research was to identify, describe and explain the critical dimensions that shape the business and information technology alignment process. In chapter 2 literature review, the dimensions were identified, described and explained as process, content, strategy and structure. Whereas process, how the university develops and implements its strategy; and content, the value added to the university; and strategy, the development of long-term direction and implementation of activities to achieve a mission; and structure, the formal grouping of like complex systems to direct activities toward achieving a collective goal.

The operational definition of the business and information technology alignment process is best stated by Venkatraman (1989) as “the relationship between strategy and performance at the Information Technology (IT) service level, as well as the business level” (p. 126). The reviewed literature as described in chapter 2, identify, define, and describe the complexities associated with consistent results of alignment between information technology and the organization’s goals. Chan and Reich (2007); and Hirschheim and Sabherwal (2001), summed the context of the research literature with regards to the alignment process as having four consistent and essential elements: content, process, strategy and structure. Reich and Benbasat (2000), suggested two

aspects of the alignment process, intellectual and social. The intellectual corresponds to strategies, structure, and process. The social dimension corresponds to the content. The social dimension is referenced as, “the state in which business and IT executives within an organizational unit understand and are committed to the business and IT mission, objectives, and plans” (Reich and Benbasat, p. 82).

Six research questions were used to guide the study:

RQ1: What collaborative activities should leaders of the organization and ITS employ to increase organizational performance?

RQ2: How should organizational leaders structure ITS for a better supportive role in creating and sustaining a competitive advantage among its competitors?

RQ3: How should organizational leaders structure required procedures and processes for business and ITS in support of the core environment of the organization?

RQ4: How should organizational leaders manage business and ITS knowledge used in the operation of organizational business ventures?

RQ5: How should organizational leaders create and manage physical information pathways of business and ITS while creating competitive distinctiveness for the organization?

RQ6: How should organizational leaders use internal and external human resources of business and ITS to develop a competitive advantage?

A qualitative case study methodology was selected as the focus of the investigation, because the complexities surrounding the topic of business and ITS alignment, as discussed in chapter 2. An investigation where there is complex and

undefined operational variables, the researcher used a case study to focus the “examination of a phenomenon [or events] in its natural setting by employing multiple methods of data collection to gather information from one or a few entities [people, groups, or organizations]” (Benbasat, Goldstein, & Mead, 1987, p. 371). The data collection technique involved 24 face-to-face interviews. The interviewees were equally divided in three employment groups; eight were executives/managers, eight were faculty, and eight were staff. The interviews were conducted in private offices with an average interview lasting 26 minutes. The responses were coded using computer analysis software that arranged the textual responses into similar categories based on predetermined degrees of agreement and disagreements to the questions asked, and this analysis was presented in chapter 4.

Recommendations

The recommendations in this section are based on the findings of the study and are related to research questions for executives/managers of the university.

Research question 1

The study's findings show the need for collaborative activities between ITS and the different schools and college of the university, thereby constructing a frame to support content or value, and structure a more interactive delivery system for that content. The content of such collaboration can attribute value when the participant can identify with the activity and event as a form of ownership (Scott, 2003; Hanna, 2000), or as a business enabler (Simonsson, Lagerstrom & Johnson, 2008). It is therefore recommended that a collaborative system be developed and implemented in which there is direct participation (online) and representative participation (committee), for all

university stakeholder. The benefit to the university is an environment that would foster a common knowledge repository which can be used to collect system requirements and expectations through the online process and prioritize its development and implementation via a committee procedure.

Research question 2

The majority (62%) of the study's participants did not believe the support was direct in terms of focus and attention, nor in terms of distribution of financial resources to support the objectives of the university's goals, coupled with 58%, of whom believed that the university lost value by what ITS did not accomplish in terms of the CUP objectives. It is recommended that the university redesign the ITS command structure by creating an executive level position, Chief Information Officer (CIO). The benefit to the university is a formal position responsible for the business implementation of technology within the university's 8080/2020 goal parameters (Glen, 2003). The redesign would reduce task and role ambiguity and promote interdependency between the departments while reducing conflicts associated with resource distribution among competing university entities for the same or similar resource(s) (Scott, 2003). The redesign will help establish a centralized focus for the development of goal achievement activities and promote the establishment of a technology governance with which to measure effectiveness and monitor efficiency of ITS's supportive role. As technologies evolve and the introduction frequencies between innovations decrease, the university's ITS structure will increase in complexity, becoming more variable and reactive to its environment (Scott, 2003), signaling a greater need for a focused distinction at the executive level.

Research question 3

Twenty respondents (83%) stated they had no knowledge of any written ITS policies and believed there were procedures, but could only report knowledge of the help desk, is supported by the research, finding no accessible written policies. It is recommended that ITS prepare an operating document, technology governance, to support, direct, implementation, and assess technology use within the university's infrastructure. The benefit to the university is a document which guides and directs the actions and deployment of personnel and resources in support of the university's mission, goal and business model (Caetano, Silva & Tribolet, 2005). Another benefit of the technology governance it can be focused to measure the effectiveness and efficiency of ITS operations in support of the strategic planning process. It is also recommended that a formal group of technical and non-technical individuals be created to help develop the technology governance, and this group could be identified as the *university's technology group*. The benefit to the university is the creation of a formal entity, charged with the responsibilities to recommend and develop implementation strategies for formalized practices and procedures for the university related to technologies (Glen, 2003).

Research question 4

The majority of respondents, 20 of 24 (83%), believed that they must manage proprietary knowledge or content on their own. This supported the belief held by 21 of the respondents (87%) that there is no proprietary content management support by ITS outside of the BlackBoard® environment. All respondents believed that the management

of proprietary knowledge and content is important. It is recommended that a committee of the university's technology group, discussed in research question 3, serve as an investigative arm of ITS to seek off-the-shelf innovative systems for the management of proprietary knowledge; or the university hire (in-house) or outsource the expertise to develop the management system (Caetano et al., 2005).

The benefit of the in-house development of a management system is the fit to the university specific infrastructure and operating environment, and specifications for requirements can be phased in during the software design life cycle (SDLC). The negative associated with hiring or outsourcing the expertise needed to develop a management system is the time and cost related to the different phases of SDLC.

The benefit to the off-the-shelf system is the reduction in the time and cost related to the implementation of the system. The negative associated with the off-the-shelf is the time it might take to match the university's infrastructure and operating environment and the learning curve for the support personnel.

Research question 5

All respondents acknowledged concerns with the command pathways ranging from the knowledge of a command structure that has not worked to help resolve problems, 12 of 24 (50%), to the belief that the ITS infrastructure does not fully support the university's goal, 20 of 24 (83%). It is recommended that a process driven model be established as suggested by Strnadl (2006), in which a web enhanced communication pathway be developed and implemented in which university personnel can request assistance with things other than a malfunctioning computer; it should be available for

such things as training, assistance with content delivery within the classroom, or the creation of systems to capture, store, retrieve and report data.

It is also recommended that the university outsource the hosting responsibilities for its online programs to avoid concurrent connection and accessibility issues. The university's hosting servers and storage units are located in one of the original 1950 buildings of the university's physical plant, and as such, the network infrastructure is coupled to the old power grids of the city and subject to the same power energy inconsistencies. The power inconsistencies decrease the reliability of in-house hosting for services and programs.

Research question 6

All respondents believed in the important role and responsibility ITS has in establishing the university's competitive position. Finding and retaining good ITS staff is a problem, 21 of 24 (87%) believed it is the function of the budget restraints with respect to the cost of full time personnel. The most significant result is that 14 of 24 (58%) believed that value is taken away from the university's by what ITS is not able to perform. It is recommended that the university utilize the university technology group sub-committee to investigate outsourcing the software development of a proprietary management support systems. The benefit to the university is the reduction of cost, related to full-time employees. A sub-committee of the *university's technology group* referenced in recommendation research question 3 would have responsibility for oversight recommendations and development of operational parameters for the outsourcing contracts. This committee would have available to the requirements and expectations of the desired systems via the collaborative environment developed from the

recommendation in research question 1 in order to guide the development process (Strnadl, 2006). The creation of the CIO position recommended in research question 2, responsibilities would include directing ITS personnel and the off-shore personnel activities associated with all phases of the SDLC (Oh and Sandhu, 2002).

Recommendations for future research

It is recommended that a follow-up investigation be conducted at this research site with the focus on the relationship of security within the four critical dimensions of alignment. Security is an important component in each of the critical dimensions that shape the business and ITS alignment process. The purpose of this research was to identify, describe, and define the dimensions that shape business and ITS alignment. Attempting to include security, given its importance, into this research project would have diminished the importance of each component relationship to the critical dimensions of alignment and changed the focus of this study given the complexities identified and discussed in the literature review. This researcher would conduct the future research by:

1. Investigating university's use of security from the perspective of content dimension and its ability to manage access-control for proprietary, employee, and student sensitive data. Who receives access and how access is obtained – wireless, remote or local connectivity only?
2. Considering security from the perspective of process dimension would focus on what practices are implemented for the notification of information collection and distribution purpose, correction of errors in stored information, the measure taken to safe guard the information, and the university's accountability

process to insure compliances with regulatory requirements such as the Family Educational Rights and Privacy Act (FERPA).

3. The research would consider the university's security architecture (structure dimension) which would include the physical network infrastructure, the technology portfolio, and the processes that direct or guide implementation, maintenance, and development of systems, and further identify the relationship between the role and task identification to the access-control management tools.
4. Finally, the future investigation would consider security from the perspective of the university's strategic planning process to allow access to academic content areas, while limiting access to sensitive data areas. The advent and proliferation of wireless devices, such as the iPod, USB storage, multifunctional devices, and Bluetooth enabled devices increase the potential threat level to sensitive information from within the university.

Conclusions

In conclusion, this case study focused on the university's business and ITS alignment process. This research identified critical dimensions that shape the business and information technology alignment process; a process that the university should employ to maintain its relevancy as a growing entity in the field of education. This research addressed six research questions relative to the four dimensions of process, content, strategy and structure. The data via responses to face-to-face interviews identified perceptual concerns. Recommendations were presented based on the participants' responses to the eight interview questions and presented in this chapter

under the section titled Recommendations. This research highlighted the complexities of the alignment process and identified the dimensions which are critical to the development and maintenance of alignment process between the organizational goal or mission and the activities of the university's ITS in support of the goals. The research has shown that the complexities of the alignment process preclude it from being resolved with the myriad of traditional sequential strategies, where the focus is on progressive resolutions as reported in chapter 2. This research has demonstrated the resolution of the alignment process is not the quick fix, but the implementation of a framework (model) that is fluid and sustainable for the business environment. A model which integrates process, content, strategy and structure is an easy and adaptive model for practitioners to follow and scholars to investigate. Because the alignment process is multidimensional, interactive, and interdependent, there is no simple solution that can be generalized across the vast spectrum of organizational and business types, thus the reason for Pijpers, Gordijn, and Akkermans (2008) statement of an unrealistic approach to a sequential or top-down approach is supported by this research.

Security is a very important consideration within all aspects of information technology and it was not overlooked, but determined to be of such importance to the implementation of alignment, that security should be the focus of its own empirical study. A follow up study should be conducted which focus on the relationship between security and the critical dimensions of process, content, strategy, and structure.

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APPENDIX A. INTERVIEW QUESTIONS

- IQ 1 How long have you been with this organization?
- IQ 2 Do you believe there is collaboration between the leaders of this organization and Information Technology Services?
- If yes, why do you believe this? What examples can you give that show collaboration?
 - If not, why do you believe collaboration is not occurring?
 - How can collaboration be improved?
- IQ 3 Do you believe that leadership support can help create a competitive advantage within this organization?
- In what ways can leadership structure a more supportive role in creating and sustaining competitive advantage?
 - In what ways can leadership structure have a less than supportive or negative impact in creating and sustaining competitive advantage?
- IQ 4 Do you believe the business and information technology services procedures and policies are structured to support the goal achievement of this organization?
- In what ways do you believe these policies and procedures contribute to achieving the organizational goals?
 - If not, why do you believe the policies and procedures do not help?
 - Can you give a specific example of either a policy or procedure that does not help?
 - How can the policies and procedures be improved?
- IQ 5 Do you believe the organization manages its proprietary business and Information technology services' knowledge to become more competitive?
- In what ways does your organization manage its knowledge? Can you site a specific example?
 - If not, what do you believe prevent this from happening?
 - Can this type of knowledge be managed?
- IQ 6 Do you believe the information technology pathways contribute to the competitive nature of your organization?
- In what ways does this information pathway support the goal(s) of the organization?
 - If not, why do you believe the pathways do not support the goals?
 - How can the pathways be improved?
- IQ 7 Do you believe the human resource, internal and/or external, is used to develop a competitive advantage for the organization?
- In what ways do you believe the resources are beneficial to support a complete advantage? Can you site a specific example?
 - If not, how can this be improved?

IQ 8 Is there anything else that you believe can be of benefit to this research that you would like to share?