THE SUPPLY CHAIN MANAGEMENT ORGANIZATION WITHIN THE GLOBAL FIRM: A STRUCTURAL CHANGE PERSPECTIVE

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ABSTRACT

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This dissertation examines how firms change their supply chain management organization structure to address challenges associated with pursuing global strategies. We perform a qualitative study to develop a structural change process that examines the change progression from external environmental pressures to structural design implementation. Our sample consisted of 22 leading global firms and included interviews with 46 senior supply chain leaders from corporate, SBU, and functional supply chain related organizations. In addition, we identify similarities and differences of the emerged structural change process to existing organizational structural change theories. The proposed supply chain management organizational change process most closely follows strategic choice and genealogical theories. Further, we identify specific areas where existing organizational change theories can be extended, as well as which theories best explain specific types of supply chain structural change phenomena. Contributions to theory and practice are presented as well as suggestions for future research.

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CHAPTER 1
INTRODUCTION

Over the past few decades, firms have rapidly expanded across international borders as domestic markets have become saturated and mature. Expanding outside their home countries, global firms draw on many of the strengths that created domestic success. Some examples include competitive brands, marketing expertise, product and process innovation, and supply chain management capabilities. This shift in the business environment has caused firms to recognize the potential for supply chain management to contribute to the firm's strategic vision, as well as its overall competitive advantage.

Supply chain management organizations (SCMOs) have evolved their capabilities over the past few decades in response to global expansion, as well as to deregulation and changing geopolitical events (e.g., the formation of the European Union, the North America Free Trade Agreement, and increased access to markets in China, India, Russia, and Brazil). Such events have increased competition among firms, further increasing globalization pressures (Bowersox, Closs, and Cooper, 2009). To remain competitive, SCMOs have improved cost, visibility, and cycle time performance across functions, products, and markets. These demands have increased coordination requirements among supply chain related functions.

In the past, however, supply chain management related functions were generally under the direction and control of various departments within the firm (e.g., manufacturing, marketing, materials management, physical distribution) and their activities were rarely

coordinated. Such fragmentation allowed responsibility to be diffused, which often led to duplication, waste, and impeded mission accomplishment. Over time, supply chain management thought transitioned towards more of a systems view (Bowersox, Closs, and Cooper, 2009). This new paradigm characterized systems as a set of independent parts that interacted with each other, thus creating a degree of interdependency among its parts (Bertalanffy, 1956). The underlying belief of the systems view is that performance from an integrated system will produce an overall outcome greater than is possible from a situation where business activities are not coordinated. As firms continue to develop a systems orientation, supply chain management has emerged as a discipline and has included a broader range of activities, has served as an impetus towards cross functional consolidation (Bowersox, Closs, and Cooper, 2009), and has motivated the development of SCMOs.

Field interviews from this research revealed that global firms have established formal SCMOs. In addition, it is common practice for these global SCMOs to closely coordinate their diverse set of responsibilities as a system. Interviews further revealed that SCMOs oftentimes changed their organizational structure to accommodate complex business demands driven by changes in business environment. However, organizational structure changes are costly and can be highly disruptive to operations and organizational relationships (Galbraith 2002). Regardless, SCMOs frequently make structural changes despite the effects on resources, operational routines, and organizational relationships. One explanation for this phenomenon is that managers who understand and harness the change process can create diverse

organizational capabilities that "represent the last truly sustainable source of competitive advantage" (Nadler and Tushman, 1997; p. 226).

Research has examined organizational change at several different organizational levels, including the industry level (DiMaggio and Powell, 1983; Hannan and Freeman, 1977), firm level (Lawrence and Lorsch, 1967; Thompson, 1967), and functional department level (Bowersox and Daugherty, 1987; Johnson and Leenders 2001, 2003, 2008). Yet, many firms have SCMOs that manage the activities of more than one traditional functional department. As such, the organizational level of multifunctional SCMOs is between the firm level and the functional department level. However, research has not examined the nature of SCMO structural change at the multifunctional level of analysis. This is an important limitation in our understanding of supply chain management as research suggests that organizational structure influences information flow and human interaction (e.g., Lawrence and Lorsch, 1967; Scott, 2003). Specifically, structure is seen as channeling collaboration, specifying modes of coordination, allocating power and responsibility, and prescribing levels of formality and complexity (Galbraith, 2002; Lawrence and Lorsch, 1967; Miller, 1987; Thompson, 1967). As such, structural change is a critical consideration for practitioners, to the extent that activities such as collaboration, coordination, and power and responsibility allocation affect SCMO performance. As a starting point to better understand this gap in the literature, this research focuses on addressing the following question:

RQ1: What is the process that governs structural change of global SCMOs?

Although research is lacking regarding SCMO structural change, there are several supply chain related studies that provide a basis for comparing our research findings. Chapter 2 discusses these studies in detail and identifies an additional research limitation. Specifically, this study finds an extremely limited application of the large body of organizational change literature on the results of these supply chain related studies. Applying insights from the organizational change literature to the supply chain context could reveal which change theories provide a detailed perspective regarding specific SCMO structural change issues. Alternatively, different theories may explain different portions of the change process or different contexts. This information will help focus researchers in this area on appropriate theories to investigate specific types of change phenomena. Finally, such an assessment would provide a rubric to assess the theoretical grounding for the SCMO structural change processes identified in the current study. As such, we investigate the following research question:

RQ2: What are the similarities and distinctions between how global SCMOs structurally change and existing organizational change theories?

We conduct a two part study to examine these questions. Part 1 addresses the first research question. We use a qualitative approach to draw on the insights from senior SCMO leaders. We also draw upon strategy, organizational science, and supply chain literature to provide insights concerning the emerged SCMO change process. In Part 2, we address the last research question by comparing and contrasting the developed SCMO change process with several extant change theories. Table 1-1 summarizes the intended contributions.

Table 1-1: Intended Contributions

	For Academics	For Practitioners
Part 1	• Provide a foundational framework of the SCMO structural change process • Help explain apparent change process inconsistencies within supply chain related structural change literature • Identify important competencies to examine structural change flexibility and strategic integration	• Identify pressures in the global environment that are likely to cause SCMO structural change • Provide a structured process so managers can more effectively recognize and respond to SCMO change drivers
Part 2	• Provide initial theoretical grounding for the SCMO structural change process • Provide insight into which existing theories best explain different portions of the SCMO change process • Highlight areas where existing change theories can be extended	• Provide specific SCMO practical applications for each structural change theory, including: ○ Negotiating conflicting goals ○ Lobbying success-defining organizations ○ Implementing changes ○ Understanding incoherence risks during transition periods ○ Understanding mechanisms involved with building new capabilities

This dissertation is organized in the following manner. We provide a common abstract, introduction (Chapter 1), and literature review (Chapter 2) to provide a foundation for the two part study. Chapter 3 presents the first part of the study and includes methodology, results, and conclusions and contributions. Similarly, Chapter 4 presents the second part of the study. Finally, Chapter 5 presents future research and potential conceptual models for such research.

CHAPTER 2
LITERATURE REVIEW

This research is focused on understanding how global firms shape their SCMOs in response to changing business conditions. To accomplish this objective, we examine the process of structural change within a firm's internal SCMO. First, we define a supply chain as (Swink, Melnyk, Cooper, and Hartley, 2011; p. 4):

> *Supply Chain: "The global network of organizations and activities involved in designing, transforming, consuming, and disposing of goods and services."*

A SCMO is the organization that governs one or more supply chains. Consistent with the Supply Chain Operations Reference Model (Supply Chain Council, 2008), we define the SCMO as:

> *SCMO: The formal organization(s) that conduct supply chain operations within the five core processes of planning, sourcing, making, delivering, and returning.*

However, the nature of the SCMO is evolving to include a broader range of activities. Therefore, the scope of functions contained within the SCMO is changing. While SCMO operations primarily occur within five domains (i.e., plan, source, make, deliver, and return), firms do not always define their SCMOs with this full domain. Additionally, other functions may also be included in the SCMO that have not been historically viewed within the supply chain domain. Examples of these non-traditional supply chain functions include strategy development, process and/or product innovation, quality, safety, performance measurement, post sales support, and sustainability. Field interviews suggested the specific configuration of

functions that are included in the SCMO depends on several factors, such as specific business needs, key personnel experience and availability, and historical reasons.

Note that it is possible for one firm to have several SCMOs. Based on observations from this research, many global firms have several SCMOs that operate independently. For example, a more decentralized firm may have a separate and distinct SCMO serving each strategic business unit (SBU). Where a SBU is defined as (Swink, et al., 2011; p. 27):

> *SBU: "Semi-independent organizations used to manage different product or market segments."*

At the other end of the spectrum, a centralized firm may only have one SCMO serve all its SBUs. There are also many other possible SCMO configurations that fall in between these two extremes. Consequently, the SCMO span of control can differ dramatically across firms or even across SBUs within the same firm.

2.1 Organizational Structure

In this study, the term "structure" refers to the elements of an entity and how the elements are linked together. In the context of a firm, the organizational structure refers to the organizational subunits that are linked together to accomplish the firm's overall objective. In this definition are two key elements of an organization's structure that we will address in this study. The first element is the unit grouping and the second element is the linking or integration mechanisms (Lawrence and Lorsch, 1967; Nadler and Tushman, 1997).

Unit "grouping involves the aggregation of work functions, positions, and individuals into work units" (Nadler and Tushman, 1997; p. 67). When managers determine how to group people together as units, in the same decision, managers have also implicitly decided how to separate people. Although grouping people into units provides specialization benefits, it also creates a seam in the organization that retards information flow and creates the potential for conflict. Lawrence and Lorsch (1967; p. 8) describe this inherent tension as the "division of labor among departments and the need for unified effort leads to a state of differentiation and integration within any organization." Unit groupings can be formed around functions, products, technology, customers, markets, geography, or a combination of these forms of unit groupings. For example, many of the firms interviewed in this study structured their SCMOs purely by functions (e.g., plan, source, make, deliver, and return). Other SCMOs combined a functional structure with a product, technology, customer, market, or geographic structure (e.g., plan, source, make, deliver, and return within North America, Europe, and Asia).

Linking or integration mechanisms are the organizational mechanisms that enable a firm to reach a state of integration (Lawrence and Lorsch, 1967). A mechanism is a means by which an effect is produced or a purpose is accomplished (i.e., the means used to achieve an integrated state). For example, to motivate integration of two separate functions, a firm could develop cross functional performance rewards. The performance rewards motivate the integration of activities between the functions and, thus, is a means to that end objective. Other examples of integration mechanisms used in a firm to achieve integration are information systems, standard work processes, committees, teams, liaisons, ad-hoc meetings,

and informal personal networks (Gailbraith, 2002; Nadler and Tushman, 1997). Therefore, integration mechanisms represent relationships among groups that are separated by structural boundaries (Nadler and Tushman, 1997).

However, both elements of organizational structure (i.e., grouping and integration mechanisms) are rarely addressed in supply chain research. Integration in supply chain literature principally focuses on the process (e.g., inter- and intra-firm integration practices) and/or the content (e.g., types of information) involved in the integration process (Frohlich and Westbrook, 2002; Pagell, 2004; Swink, Narasimhan, and Wang, 2007). The research regarding integration processes often times includes integration mechanisms, such as the degree to which cross-functional teams are used. However, such research does not address pertinent relationships between mechanisms and unit groupings. This is an important limitation as the process of integration may be different for different structural forms. Organizational design literature suggests that the need for integration mechanisms is partially dependent on the type of unit groupings within firms (Gailbraith, 2002; Nadler and Tushman, 1997). Specifically, when a firm divides its labor by forming different unit groupings (i.e., sub-organizations), boundaries are inherently created that require integration mechanisms to link the unit groupings together. Therefore, different unit groupings create different boundaries, which require different sets of integration mechanisms to link the groups together.

For example, one common challenge that global firms face is to manage the complexities related to achieving consistency and efficiency across geographically separated

markets (Gupta, 1987). Many global firms seek to gain degrees of efficiency and consistency through centralized decision making (Galbraith, 2002) and cross-SBU coordination (Govindarajan, 1988; Porter, 1980). Global firms have developed centralized SCMOs that perform cross-SBU supply chain operations. SCMO integration processes required for a firm that has cross-SBU coordination are significantly different from the SCMO integration processes required for a firm that has independent SBUs.

2.2 Organizational Structure Change

So far we have specified our conception of SCMO structure, but have not defined SCMO structural change. SCMO structural change refers to a change in either unit groupings or integration mechanisms related to the SCMO. Organizational theory and strategy literature provide a large body of valuable knowledge regarding firm organizational change.

Researchers have studied organizational change at three levels of analysis, namely individual, organizational, or system level. At the *individual level*, the focus is on the behavior of and interaction among individuals within the organization (Katz and Kahn 1966, 1978; Weick 1995). Researchers operating at this level treat the organization, itself, as the environment and study its effect on individuals' attitudes and behaviors. At the *organizational level*, the primary areas of interest include structural characteristics and social processes of the organization. The focus is on a vast array of organizational characteristics, such as: strategy, structure and process (Galbraith, 2002; Miles and Snow, 2003); differentiation, integration, and departmental conflict resolution (Lawrence and Lorsch, 1967); and how political processes influence the exchange

process (Pfeffer and Salancik, 1978). Finally, researchers who focus on the *system level* view the entire organization as an entity which operates in a larger system of independent and interacting organizations. At this level, authors have examined classes of organizations and the environment (Hannan and Freeman, 1989) and how organizations are embedded in differing sets of norms and rules which govern the nature of relations among organizations (DiMaggio and Powell, 1983). This study examines the SCMO at the organizational level of analysis.

Research that focuses on organizational level of change for supply chain related functions (e.g., plan, source, make, deliver, return) is limited. Table 2-1 provides an overview of supply chain related organizational change studies. One of the earliest studies examined the evolution of logistics organizations within the firm (Bowersox and Daugherty, 1987). Bowersox and Daugherty (1987) found that as logistics organizations changed their strategy, the organization's structure changed to align with the new strategy. Bowersox and Daugherty (1987) reported these results were marginally consistent with stage theory. Bowersox and Daugherty (1987) conception of stage theory suggests that organizations move through a pattern of increasingly integrated stages over time.

Johnson and Leenders (2001; 2003; 2008) examined several types of purchasing organizational changes. The collective contribution of these works from a general organizational change perspective is twofold. First, the authors provide a thorough list of internal and external change drivers. Second, Johnson and Leenders (2001; 2003; 2008) identified three different structural change processes for the purchasing organization (see Table

2-1). Johnson and Leenders (2001; 2003; 2008) reported these results to be consistent with contingency theory (where structural decisions are dependent on environmental conditions) and inconsistent with stage theory.

Kim (2007) is one of the first authors to present a typology of supply chain organizational groupings and their hierarchy within the firm (i.e., an "organization chart" typology). Kim (2007) explicitly depicts the SCMO in a tangible and practical manner - where the SCMO span of control and hierarchy within the firm can differ from firm to firm. Kim (2007) suggests that SCMOs develop according to a life-cycle or stage model where there is a progression of increasing internal integration followed by an increasing trend of external integration. In addition, Kim (2007) finds empirical support that internal integration is related to cost minimization and external integration is related to increased flexibility, customer service, and innovation. Finally, Kim (2007) reported these results were marginally consistent with stage theory.

McIvor and McHugh (2000) investigated structural change within the purchasing organization that was changing the nature of its buyer-supplier relationships from being transactional-orientated to being collaborative-orientated. One distinction of the McIvor and McHugh (2000) study is that a change in organizational capability is involved in the structural change process (see Table 2-1). Likewise, Parker and Anderson (2002) posit that an organizational capability change is part of the structural change process that describes how a firm transitions from being vertically integrated to having its major functions outsourced.

Parker and Anderson's (2002) study is one of the first studies to address more than one supply chain related function in the analysis, including source, make, and deliver.

Table 2-1: Supply Chain Related Organizational Change Literature

Author	*Purpose of Organizational Change Portion of Study*	*Organizational Focus*	*Organizational Structure Definition*	*Hypothesized Change Process*	*Method*	*Results Compared to Existing Theory?*
Bowersox & Daugherty 1987	Study the evolution of logistics organizations	Logistics organization	Process, market, or information orientation of the logistics organization	Firm Strategy change➔ Logistics structure change	Multi-case study	Results reported to be marginally consistent with stage theory -- limited analysis reported
Johnson & Leenders 2001	Why do purchasing organizations make major structural changes & what is the change process	Purchasing organization	Level of centralization in purchasing organization	Environment➔Firm strategy change➔Firm structure change➔Purchasing structure change	Multi-case study	Results reported to be consistent with contingency theory -- No analysis reported
Johnson & Leenders 2003	How and why firms make major changes to purchasing responsibilities	Purchasing organization	Span of control within purchasing organization	Three Processes indentified: 1) Same as in Johnson & Leenders 2001 (above) 2) Environment➔Firm strategy change➔Purchasing structure change 3) Misc drivers➔ Purchasing structure change	Multi-case study	Results reported to be consistent with contingency theory and inconsistent with stage theory -- limited analysis reported

Table 2-1 (cont'd)

Author	*Purpose of Organizational Change Portion of Study*	*Organizational Focus*	*Organizational Structure Definition*	*Hypothesized Change Process*	*Method*	*Results Compared to Existing Theory?*
Johnson & Leenders 2008	Study 6 aspects related to a firm appointing its first chief purchasing officer	Purchasing organization & other senior management	First CPO appointment and reporting line	Same 3 processes as in Johnson & Leenders 2003 (above)	Multi-case study	No
Kim 2007	Study the relationship between SCMO organizational structure and the developmental stage of SC integration	SCMO	Organizational groupings and hierarchy	SCMOs develop according to the life-cycle model of increasing internal integration first, followed by external integration.	Survey	Results reported to be consistent with stage theory
McIvor & McHugh 2000	How the purchasing organization changed after adopting a collaborative buyer-supplier perspective	Purchasing organization	Organizational groupings and cross-functional teams	BU strategy change➔Purchasing strategy change➔ Purchasing capability change➔ Purchasing structure change	Single case study	No

Table 2-1 (cont'd)

Author	*Purpose of Organizational Change Portion of Study*	*Organizational Focus*	*Organizational Structure Definition*	*Hypothesized Change Process*	*Method*	*Results Compared to Existing Theory?*
Parker & Anderson 2002	How firms successfully manage specialized, quickly changing supplier networks	Multiple internal supply chain related functions	Cross-functional & cross-supplier integrators	Outsourcing strategy change➔Organizational capability change➔ Structure change	Single case study	No

2.3 Research Gaps

A review of the literature highlights three research gaps where further examination would increase our understanding regarding SCMO structural change. The first research gap concerns the unit of analysis. Extant research has examined organizational change at the firm population level, the firm level, and the functional department level. The SCMO does not fall into any of these analysis levels, as SCMOs generally manage the activities of more than one traditional functional department. Therefore, the samples used in prior studies have not been suitable to investigate multifunctional supply chain organizations. As such, prior research has not examined SCMO organizational change. This is a significant issue as organizational structure is seen as channeling collaboration, specifying modes of coordination, and allocating power and responsibility (Galbraith, 2002; Lawrence and Lorsch, 1967; Miller, 1987; Thompson, 1967). All of these activities are critically important to the practice and study of supply chain operations. Specifically, the process that describes how and why these activities change is crucial to maintaining or improving performance. For example, what factors could affect structural change? What aspects should organizations address when modifying their structure given that miscalculations may disrupt collaboration, coordination, and power and responsibility allocation, thus affect performance?

The second research gap identified in this study is a lack of consensus regarding the organizational change process in supply chain literature. The results in Table 2-1 (see "Hypothesized Change Process" column) highlight this issue. Specifically, the process steps

leading up to structural change in the organization of interest (e.g., logistics organization, purchasing organization) vary among the studies. In fact, the studies identified in Table 2-1 suggest that there could be four different antecedents (i.e., strategy change, structure change, capability change, and miscellaneous drivers) to structural change in the organization of interest.

One potential reason for these differences is that researchers chose different starting points for the change process. For example, Bowersox and Daugherty (1987) looked at one antecedent to the structural change in the organization of interest. Conversely, Johnson and Leenders (2001) began their change processes with the environment and worked down the firm's hierarchy to the organization of interest. It is possible that all of the change processes in Table 2-1 are valid given that the boundaries or context of each study was different. However, if all change processes are possible, which one should SCMOs follow? Perhaps, a more generalized model could reconcile the results in Table 2-1 and be applied to more environments, thus having a wider application (Wacker, 1998). As such, this literature gap requires further investigation to help managers make more informed decisions regarding SCMO structural change. Finally, additional inquiry in this area may also help clarify how boundaries or the context of the study affects how the structural change process is perceived by researchers (Bacharach, 1989).

The final research gap is the extremely limited evaluation between the results of the studies contained in Table 2-1 and the large body of organizational change literature. Bagozzi

(1984) suggests that alternative theories need to be considered to build theory and advance knowledge. As such, an assessment of existing change theories could help explain the lack of consensus among the structural change processes identified in Table 2-1. In addition, different theories may explain different portions or boundaries of the structural change process for SCMOs, as well as different contexts (e.g., under what conditions is a narrowly scoped SCMO likely to exist versus the conditions where a broadly scoped SCMO is likely to exist). This information would help guide researchers regarding which theories to use when investigating specific types of change phenomena. Finally, such an assessment would provide a rubric to assess the theoretical grounding for the SCMO structural change processes resulting from this study.

In summary, we witness three research gaps in supply chain related literature: 1) the absence of studies examining SCMO structural change at a multifunctional level of analysis; 2) the lack of consensus regarding the characterization of the organizational change process; and 3) the limited comparison between the results from organizational change process studies and existing organizational change theories. Given the research gaps identified above, this study proposes the following research questions:

1. What is the process that governs structural change of global SCMOs?
2. What are the similarities and distinctions between how global SCMOs structurally change and existing organizational change theories?

To address these questions, we conduct a two part study. Chapter 3 presents Part 1 and will address the first research question and Chapter 4 presents Part 2 and will address the second research question.

CHAPTER 3
STRUCTURAL CHANGE IN GLOBAL SCMOs

This chapter addresses the following research question:

1. What is the process that governs structural change of global SCMOs?

We answer this question by using a qualitative approach to draw on the insights from senior SCMO leaders. We also draw upon the strategy, organizational science, and supply chain literature to provide useful insights concerning the emerged SCMO structural change process.

3.1 METHODOLOGY

We use a grounded theory (GT) approach to accomplish the objectives of this study. The analysis follows the conceptual guidance of Glaser and Straus (1967), Glaser (1978; 1992), and Charmaz (2006). As with any research endeavor, the nature of the research problem and the guiding theory's degree of maturity should dictate which method is used to investigate the phenomena (Eisenhardt, 1989; Glaser & Strauss, 1967; McGrath, 1964; Rosenthal and Rosnow, 2008). Following the work of McGrath (1964), Bouchard (1976) and others, Edmondson and McManus (2007) assemble a methodological fit framework such that theories fall along a maturity spectrum from nascent to mature. Specifically, Edmondson and McManus (2007) suggest quantitative methods are appropriate for more mature theories and qualitative methods are more appropriate for less mature theories. Edmondson and McManus (2007) characterize mature theory as having well-developed constructs and models that have been

validated over time such that there is broad agreement among scholars. At the other end of the spectrum, nascent theories propose provisional answers to "questions of how and why, often merely suggesting new connections among phenomena" (Edmondson and McManus, 2007; p. 1158). Intermediate theory is situated between nascent and mature theory. Typically the goal of intermediate theory is to extend nascent theory (Edmondson and McManus, 2007). One example of an intermediate theory is when a new construct is introduced to an existing theory and relationships between the new construct and established constructs are proposed.

Again, SCMO structural change is the phenomenon under investigation in this study. Specifically, how do leading global firms change their SCMO structure to support global strategies? Based on review of the literature in the introduction section, this area of study is positioned in between nascent and intermediate theory. Although organizational change literature provides a foundation for general structural change, the emergence and evolution of multi-functional SCMOs is a relatively new phenomenon. In addition, there is a lack of concurrence within the supply chain literature regarding the structure change process as addressed in the literature review section of this work. Further, the specific factors and processes that govern SCMO structural change have not been well investigated or documented.

Edmondson and McManus (2007) suggest that the appropriate methodology for this situation is a qualitative rather than a quantitative approach. In this situation, one recommended way to collect data, according to Edmondson and McManus (2007), is to conduct interviews from field sites relevant to the phenomena of interest. Data analysis

methods should involve thematic content analysis coding for evidence of constructs (Edmondson and McManus, 2007). The end result should be a contribution, such as a "suggestive theory, often an invitation for further work on the issue or set of issues opened up by the study" (Edmondson and McManus, 2007; p. 1160).

3.1.1 Grounded Theory Process

Grounded theory (GT) is one analysis method consistent with the recommendations of Edmondson and McManus (2007). GT provides a patterned searching method that enables researchers to identify and uncover changes in the key constructs that make up the underlying structure of organizations (Holland, 1992). GT provides a systematic approach that facilitates theoretical abstraction from field data (Randall, Pohlen, and Hanna, 2010). It provides a rational, empirical foundation to examine SCMO structural change. GT moves beyond description towards identifying emerging structures in complex systems, such as organizations (Holland, 1992). This is accomplished through an iterative and structured process of collecting data, comparing information between participants and contexts, identifying categories and their properties, and discovering relationships between categories (Charmaz, 2006).

Table 3-1 illustrates the flow of the overall GT process. Step one in the process is to identify the research problem, initial interview questions, and the sample. The research problem was described in the introduction section in Chapter 1. The steps will be discussed further below.

Table 3-1: Grounded Theory Process (Adapted from Charmaz, 2006; Randall, et al., 2010)

Process Step	Activity Description
1	Research problem, opening research questions, and sample identification
2	Data collection and initial coding
3	Initial memos raise codes to tentative categories
4	Data collection and focused coding
5	Memos and refine conceptual categories
6	Theoretical sampling of hypothesized relationships
7	Sorting memos, theoretical coding , and adopting categories
8	Integrating memos, diagramming concepts, and saturation
9	Emerged Theory

3.1.2 Elaboration of the Grounded Theory Process: Research Sample and Steps

In step 1, we used literature as a guide to develop the research problem, create research questions, and identify participants that are richly steeped in the phenomena of interest and factors that provide relevant contexts (Charmaz, 2006). In GT, sampling is not aimed toward population representativeness as in deductive quantitative studies (Charmaz, 2006). This type of inductive research provides a foundation for future quantitative studies to assess construct measure validity and generalizability of the emerged SCMO structural change process (Randall et al., 2010). The following paragraphs describe the selection of the study sample.

We chose leading global firms as participants. Our rationale for this choice is that global firms are most likely to be "rich" in organizational change phenomenon and face an extremely dynamic environment. We conducted interviews in two phases. The first set of interviews was exploratory in nature and the second set of interviews was for data analysis. Initial exploratory

interviews included nine SCMO senior managers from nine different firms. The purpose of these interviews was to understand important contextual factors that influence the SCMO structural change process and to further refine our understanding of the role that structural change plays in supply chain operations. Next, we discussed observations from these interviews with SCMO subject matter experts from members of the Council of Supply Chain Management Professionals' (CSCMP) Research Strategies Committee and A.T. Kearney global management consultants. The purpose of these meetings was to seek managerial assistance in interpreting our initial observations and establish practical relevance to the field of supply chain management. These interviews and subject matter expert discussions helped to refine our research and interview questions, as well as to identify pertinent contextual factors.

The sample for the second set of participants was selected using two contextual factors observed during our initial interviews and supported by literature. The first factor used was transformation technology. We adopt Hayes and Wheelwright's (1979) classification of technology (i.e., continuous, line, batch, and project). The link between a firm's transformation technology and its organizational structure is well established (e.g., Miles and Snow, 2003; Thompson, 1967). Miles and Snow's (2003) proposed adaption cycle suggests that the choice of production technology (termed the "engineering problem") directly leads to different organization structural forms (termed the "administrative problem"). We chose four broad industry groups as proxies for transformation technology. We included firms that produce industrial equipment to match the project oriented type technologies. Industrial equipment firms typically have flexible technologies that produce a low volume of customized or unique

products. We chose raw material, chemical and pharmaceutical firms to match the continuous nature of technology at the other end of the spectrum. These firms typically employ efficient technologies that produce a high volume of standardized materials or products. In between these technologies, we chose electronics and consumer package goods industries to match assembly line and batch technologies, respectively.

The second factor used to select the participants was firm diversification. Firms within the industries identified in the previous paragraph were selected to ensure varying levels of diversification. Several authors have empirically shown that there is a relationship between organizational structure and the degree of relatedness among business units within a firm (e.g., Galunic and Eisenhardt, 1994; Gupta and Govindarajan, 1986; Rumelt, 1974;). For example, organizational units within a firm (i.e., unit groupings) are generally more integrated or centrally managed as the degree of relatedness increases among business units to gain degrees of efficiency and consistency (Govindarajan 1988; Porter, 1980).

Our sample consisted of 22 leading global firms and included interviews with 46 senior supply chain leaders from corporate, SBU, and functional supply chain related organizations. The selected firms are among the largest in their industry with well known brands and have a global footprint (see Table 3-2). Leadership was assessed through a literature search, trade association presentations and memberships, and industry insights. While many of the companies are headquartered in North America, 6 of the participating companies had

headquarters in Europe or Asia. However, all the companies operate with global supply and market considerations.

Our goal was to speak with 2 or more managers at each firm in order to gain different perspectives as well as to understand issues at the corporate, SBU, and functional level. We met this goal in 18 of the 22 firms we interviewed. In the remaining four firms, we were only able to interview one participant. To build an initial understanding of the firms' context in the business environment and their structures prior to the interviews, we reviewed information from trade journals, magazines, newspapers, and company websites. In addition, we supplemented the interview data with organizational charts, team charters, and other documents shared by some of the participants.

Table 3-2: Sample Characteristics

	Revenue ($Billions)	Number of Employees
Min	0.84	5,000
Median	24.6	56,100
Average	31.2	83,815
Max	98.1	410,830
NYSE Index Membership of the 16 US-based Firms in Sample	Index	Number of Firms
	Dow Jones Composite	4
	Dow Industrials	4
	S&P 100	8
	S&P 500	14
	S&P 1500 Super Comp	15

During the interviews, we provided a short description of the research project, then we asked managers to recall as many specific SCMO organizational changes experienced by their firms as possible. Examples of the initial questions are:

- What situations or activities drove the SCMO structural change? How did you learn about these change drivers?
- What was your SCMO structure prior to the change?
- What was your SCMO structure after the change?
- What key factors did you consider when developing SCMO change options?
- Did the new SCMO structure achieve the intended results? What were the unintended results?

Although these questions provided structure for the interview, we allowed the discussion to be "open-ended" to foster a dialog and allow the SCMO manager to describe the phenomena without being constrained by the question. Researchers frequently clarified answers to the above questions and asked additional questions to investigate the subject matter deeper by eliciting examples and further insights.

In step 2 and again in step 4 of Table 3-1, interviews were conducted with supply chain leaders within their respective firms. The titles represented were mostly executive levels – including Executive Vice President, Corporate Purchasing Officer, General Manager, Vice President, and Director. Additionally, the interview participants illustrated significant business experience. Many participants have been with their respective firms for 20 years or more. In order to ensure the integrity and objectivity of the insights, participating companies and individuals were promised anonymity. Interviews were recorded and transcribed verbatim. This process ensures that nuances are maintained and incorporated into the findings. We used Atlas TI qualitative software to help organize and analyze the transcribed data.

In step 3 of Table 3-1, we analyzed transcribed interviews using a technique called "open coding" (Strauss, 1987). Open coding involves line-by-line analysis in order to identify

"key words or phrases which connect the informant's account to the experience under investigation" (Goulding, 2002, p. 76). We used preliminary codes contained in Appendix 1 to form provisional concepts that eventually led to category identification (Charmaz, 2006) for step 5 of table 3-1. We used a process called memoing that is designed to capture the thoughts and decisions that led to category emergence (Charmaz, 2006). We used memos to document emergent relationships, how we developed these relationships, and to capture the logic for follow-on interviews.

In step 6, follow-on interviews were used to further populate content and dimensionality of the emerging categories. This process is call theoretical sampling (Charmaz, 2006). During subsequent interviews, comparisons were made between different individuals, firms, and events. This iterative comparison or "constant comparison" allows the researcher to develop categories and relationship hypotheses based on one set of interviews and then "test" these proposed relationships in follow-on interviews (Charmaz, 2006; Glaser and Strauss, 1967). This process serves to move beyond description and towards developing of a theoretical structure. We continue to sample, memo, and perform constant comparison in this manner until theoretical saturation was reached. Theoretical saturation occurs when follow-on interviews fail to add to existing categories, processes, and relationships (Charmaz, 2006). In step 7, emerged categories and the relationships between categories were coded. In step 8 and 9, the structural change process emerged and was diagramed.

3.1.3 Grounded Theory Evaluation Criteria

As with other methods, GT has established techniques to assess the rigor and trustworthiness of the analysis. We adopt Glaser's (1992) criteria for evaluating GT research for this study. The evaluation criteria are relevance, fit, workability, modifiability, parsimony, and scope (defined in Table 3-3). As with other theories, the emerged GT is never right or wrong, it just has more or less fit, workability, modifiability, parsimony, and scope. We addressed these criteria through member checks and the defense of this dissertation. Researchers perform "member checks" (Glaser, 1992) with experts in the field to confirm the results of the emerged structural change process. This is the gold standard in terms of reliability in qualitative research. It enables the results to be vetted in an open dialogue to enhance understanding of the research. Specifically, these activities ensure that participants provide validation that the findings are consistent with practical experiences. Experts were asked to confirm, disconfirm, or modify the findings.

Table 3-3: Criteria for Evaluating Grounded Theory Studies (Adapted from Glaser, 1992)

Evaluation Criteria	Assessment
Relevance (Who cares?) - Extent to which the study addresses real concerns of participants and is of academic interest	Interest expressed during both sets of interviews and member check session. Interest also reflected by a major supply chain trade association and academic business institution providing funding for research effort.
Fit (Does it match reality?) - Extent to which the emerged constructs express the events they are representing.	Process steps and their content were supported during the member check session as being consistent with participant understanding and experiences. Process steps and their content also consistent with several well accepted change theories.

Table 3-3 (cont'd)

Evaluation Criteria	Assessment
Workability (Does it work?) - Extent to which the GT explains the phenomena of interest or explains how the problem is being solved	Findings were supported during member check session as representing participant experiences with the process. Findings also consistent with several well accepted change theories.
Modifiability (Can it be altered?) - Extent to which the GT can be altered when new relevant data is compared to existing data	Structural change process was easily modified multiple times during its development as new information emerged.
Parsimony (Is it simple?) - Extent to which the GT uses the minimum number of constructs to explain the phenomena of interest	Member check session participants easily understood the emerged process and suggested the process contained right level of information for managers to use in practice.
Scope (Does it apply to a broad range of contexts?) - Extent to which the GT explains a broad variety of situations within the phenomena of interest	Process explains structural change phenomena for global firms across multiple industries, organizational forms, and operating environments.

We conducted a face-to-face member check with seven of the firms (32% of the sampled firms) interviewed. During the full day group session, we presented and discussed our findings for the SCMO change process. Throughout the session, members compared their firm's structural change activities with other participants, as well as with the presented change process results. All of the members concurred that our findings were consistent with their experiences. We believe that the results were relevant as the SCMO manager's were heavily engaged in the discussion. Specifically, we observed managers applying the concepts in an effort to make sense of their past experiences and to solve current issues facing their firms.

Grounded theory evaluation criteria were also addressed through the dissertation proposal defense process. One outcome of defending this study, relevant to GT validity, is that

the study was examined by a group of academic professionals. This group consisted of experts in research methodology, supply chain area content, and supply chain related theory. All members concurred that the research problem is well formed, the methodology is appropriate and executed properly, and the findings met the evaluation criteria.

3.2 RESULTS

Field interviews revealed an extremely consistent view of the SCMO change process. The change process that managers described included three general phases: (1) Sense environmental change drivers acting on the firm and its SBUs; (2) Assess new SCMO needs and alternative structural designs; and (3) modify SCMO structure through a design change, measure the results, and adapt the structure as necessary. Each phase will be described below.

3.2.1 Sense Environmental Change Drivers

Table 3-4 lists the major internal and external environmental pressures that managers identified as driving SCMO change. This list was derived in the interviews through a two-step process. First, respondents were asked to recall any instances where environment factors drove changes in SCMO structure within their firm. Once respondents described such instances, we read a list of environmental factors identified in the literature (Daft and Weick, 1984; Hambrick, 1982) and shown in Appendix 2, and asked the respondents to discuss whether or not any of those environmental factors impacted their firm as well. The resulting environmental change drivers listed in Table 3-4 are shown in descending order with regard to

the total number of times any one change driver was mentioned by the respondents. To ensure a change drive is not inflated by one particular respondent, Table 3-4 also illustrates the number of firms in the sample where at least one respondent from that firm mentioned a specific change driver. For example, strategy change was mentioned as an important change driver a total of 53 times, and was discussed by a respondent(s) in 19 of the 22 firms in the sample.

It should also be noted that these change drivers are not necessarily independent from one another. In other words, more than one change driver could be involved in a particular instance of organizational change. For example, a change in customers or competitors (external) could drive a change in SBU strategy (internal), which in-turn could drive the SBU to change its offering (internal). These observations are consistent with the view in the organizational science literature that environmental change can create a mismatch between the environment and the firm (Child, 1997). Further, the resulting tension acts as a forcing function for the firm to restore congruence with its new environment (Lawrence and Lorsch, 1967; Miles and Snow, 1978). Each change driver will be discussed below.

Table 3-4: Major SCMO Structure Environmental Change Drivers (frequency that driver was cited; number of firms that cited driver)

Internal Drivers	External Drivers
• Strategy change (53; 19) • Leadership change (41; 13) • Mergers, acquisitions, & divestitures (36; 15) • Synergies recognized (35; 17) • Offering change (15; 7) • Performance expectations not met (12; 6)	• Markets expanding or declining (37; 17) • Customer change (25; 12) • Competitor change (18; 11) • Regulatory change (11; 8) • Technology change (10; 5)

Internal Environmental Change Drivers

Managers described different types of *strategy changes* affecting SCMO structure, including corporate, competitive (SBU), and functional strategy changes. All of the firms in our study were pursuing global strategies. As such, each respondent explained how the corporate decision to change towards a global strategy affected their SCMO structure. In most cases, firms started with regional structures that were generally independent from each other (i.e., decentralized). As firms became more global, they moved towards a more integrated structure where certain supply chain activities were centralized in an effort to increase efficiency and consistency across regions. Other types of strategy changes are discussed below, as many internal environmental changes were precipitated by competitive and/or functional strategy changes. Literature also supports the linkage between strategy and structural elements. There is a vast amount of research involving the strategy-structure-performance (SSP) paradigm (see Galunic and Eisenhardt, 1994, for an excellent review of SSP history). The SSP paradigm holds that where congruency exists between an organization's strategy and structure, superior performance is predicted (Donaldson, 2001).

Oftentimes SCMO structural changes coincided with *new leadership*. Some SCMO managers perceived that when new leaders were hired for a specific purpose (i.e., to change the priority or strategy of the firm), new leadership made changes to the organization consistent with the stated purpose. Other managers suggested that new leaders changed the organizational structure to match it to the new leader's previous position. One manager's statement described the situation that was representative in many of the interviews: "Once the new CEO was in place, he brought in certain individuals into the company with a vision of how to structure [the SCMO] based on previous experiences." Regardless of the new leader's intent, respondents were consistent in their view that linked new leadership with structural change. Although organizational change often accompanied leadership changes, in most instances, other internal drivers were also involved. One additional observation is that changes which were initiated at higher levels in the firm were more likely to be in the form of unit groupings. For example, when corporate management drove a new capability that required a structural change, the result was a regrouping of business and/or functional organizations. Conversely, changes that were initiated at lower levels (SCMO and below) in the firm were more likely to be in the form of integration mechanisms.

Another common reason that was associated with SCMO structure change was *mergers, acquisitions, and divestitures*. SCMO structure was usually modified when mergers and acquisitions were conducted for synergistic, as opposed to growth, oriented reasons. In the synergistic mergers and acquisitions (i.e., related diversification), managers deemed it important to leverage business capabilities gained from the newly acquired division. Firms

usually established joint integration teams to determine which SCMO activities to make common and which activities to leave unique. When the acquired firm and the parent firm had near identical supply chain operations, only minor SCMO structural adjustments were made. However, the overall scale of the operation was increased. When firms pursued an unrelated diversification strategy, managers indicated that there were few benefits to integrating supply chain operations. As such, we did not observe SCMO structural change in this situation.

The issues of related and unrelated diversification in multi-business firms have investigated by several authors (Galunic and Eisenhardt, 1994; Gupta and Govindarajan 1986). Firms that pursue related diversification seek to gain degrees of efficiency and consistency through centralized decision-making (Galbraith 2002) and cross-division coordination (Govindarajan 1988; Porter 1980). Whereas firms that pursue an unrelated diversification strategy seek to reduce financial risk (Rumelt 1974). For firms in this situation, achieving cross-division synergies is not an imperative (even though cross-SBU synergies may exist) and divisions are allowed to operate independently, where decision-making is generally decentralized (Galbraith 2002; Govindarajan 1988).

Firms also recognized other cross SBU *synergies* that were not associated with mergers and acquisitions. This type of change was usually part of a firm's progression towards increased globalization. Common synergies included consolidating supply chain management functional activities, such as indirect or direct spend and transportation spend, and sharing functions, such as human resources, call centers, and IT transformation activities. Further, several strategic

planning functions and network optimization activities were also centralized. Firms also took advantage of tax synergies. The resulting structure change usually involved centralizing supply chain operations in the tax efficient location.

SCMOs may modify their structure when SBUs change product or service *offerings*. One firm we interviewed was moving toward performance and specialty segments, which required a more business-oriented supply chain strategy and delivery mechanism. As such, the firm began to move away from a centralized, one size fits all approach where efficiency was generally prioritized over effectiveness. Another example of this change driver occurred with a firm that had several SBUs offering products and other SBUs offering services related to the firm's product lines. This firm decided to combine capabilities across SBUs to deliver a solution-based offering, whereby the supply chain operations required a greater level of integration. The need for increased integration among the SBUs resulted in structural changes.

Sometimes structural adjustments were triggered when *performance expectations were not met*. Managers explained that in the case when SCMO activities were "too" centralized, the SCMO structure was viewed as impeding task accomplishment. Lack of timely decisions and an inability to handle process exceptions to the SBU's satisfaction were typical complaints associated with a more centralized structure. One firm indicated that "Changing the structure was a result of push back from the move towards centralization. We tried to make things work for a while, and then decided it just doesn't work very well." Inconsistent supply chain service across divisions was a complaint when the SCMO structure was "too" decentralized. For

example, one firm determined that supply chain service needed to be elevated to a higher level within the corporation and needed to claim more control over functional responsibilities (i.e., more centralized) in order to reduce SCMO service quality issues and increase consistency among SBUs.

Literature echoes these observations as researchers have clearly documented the advantages and disadvantages of decentralized and centralized models (e.g., Galbraith, 2002; Lawrence and Lorsch, 1967; Thompson, 1967). Advantages of decentralized models include preserving legitimate differences among the business units. Advantages of centralized models generally lie in the areas of improving scale and, managing standards, and leveraging capabilities across the enterprise (Galbraith, 2002).

Another example of performance expectations not being met was exemplified in one firm that moved responsibility for customer service from sales/marketing to the SCMO in order to improve service levels. In this firm's view, customer service was more strongly related with managing customer orders (e.g., post sales support and order fulfillment/delivery) than it was to traditional sales activities (e.g., pre-sale and order placement). As such, the firm decided that customer service operations were more appropriate under the supply chain's scope of responsibility.

External Environmental Change Drivers

> "When the rate of change outside is faster than the rate of change inside the organization, then the end is near." - Jack Welch, CEO, GE

In the external environment category, virtually every firm we interviewed was adjusting its SCMO design in an effort to help build new capabilities required to compete in *expanding or declining markets*. Many firms were expanding across international borders as their domestic markets have become saturated and mature. This situation often affected the SCMO structure in both the new market and the domestic market (Note: specific SCMO structural changes associated with firms seeking global strategies were discussed in the internal environmental change driver section). However, the following examples illustrate how external environmental forces affect a firm's internal environment. Structural changes that accompanied expanding markets were due to offering changes as firms customized their product lines to match local preferences. Likewise, mergers and acquisitions were a common form of market entry, which affected SCMO structure. One manager stated a common theme, "The future of this industry is going to be either toward new marketplaces like India and China or towards low cost supply [countries]." Declining markets also affect SCMO structure in the sense that companies faced with declining markets search for ways to reduce cost by standardizing SCMO functions, reducing redundancies across divisions and/or taking advantage of consolidation opportunities. Firms experienced this situation in mature markets or when unfavorable economic conditions prevailed.

SCMO leaders frequently attributed structure adjustments to *changes in customer expectations*. The most common situation that SCMO managers described is when customers grew in terms of size and/or power. These large customers started to do business with multiple SBUs within the firm that crossed product lines or geographies. Customers became unsatisfied

with interacting with multiple points of contact and not having integrated services such as order status and billing across SBUs. This point is illustrated by the following quote and describes the SCMO's response:

> "Let me just suggest some of the big global trends that we see…there is a growing number of large international customers who, 20 years ago, weren't a very big factor and actor in our overall extended supply chains. So as the customers get larger, more globalized, wield more power, and are more important to our overall sales, we have to react as an organization. So we have now some customer teams that actually have supply chain people on those customer teams dealing with the customers on true supply chain issues"

We observed two themes regarding *competitor changes*. The first involves competitors that are actively growing through mergers and acquisitions. In this situation, competitors were able to quickly increase their scale or expand capabilities. Firms in this study usually reacted to competitors' actions by modifying the business strategy. Oftentimes SBU strategy changes precipitated SCMO structure changes to help enable a new competitive direction. The other theme in this area is when small regional competitors are able to respond to customers' needs quicker and more efficiently than the larger global firms. In these cases, global firms changed structure by selectively decentralizing local supply chain activities to accommodate local customer preferences while centralizing global activities that provided high degrees of leverage resulting in cost reduction.

Our interviews suggested that *regulatory changes* did not significantly affect SCMO design for this set of respondents. In most cases relatively minor functions were added to responsibilities managed by the SCMO (e.g., quality control, cold-chain management, import/export compliance, and anti-counterfeiting) to manage compliance with governmental

regulation. However, SCMO leaders felt that drastic regulatory changes in areas such as energy, emission, or product labeling (e.g., required reporting of a sustainability index score) could have a significant effect on SCMO structure in the future.

Finally, we observed two areas where *changes in technology* affected SCMO structure. Structure changes resulting from new information technology systems were ubiquitous. For example, successful implementation of enterprise resource planning systems increased the visibility of information which allowed firms to centralize many decisions on a global basis. The other area concerned firms in high-technology environments. The cost of technology innovation has led two firms to reduce their overall business focus and specialize into narrow market segments. In addition, these firms have had to increase their external SCMO collaboration capability with other firms. The rationale for this dynamic, according to one SCMO leader is:

> "We are a technology company and in the semi conductor business which is our core market. Things are getting really, well they're already in the nanometer scale they're now getting into the really, really small nanometer scale. It's getting to be very, very expensive technology which means you need to collaborate with other parties, not just your customers, that have specific core skills that you don't have these include some very key suppliers."

3.2.2 Assess SCMO Needs and Structural Design

Managers unanimously agreed that one of the primary purposes of the SCMO was to support the needs of the firm and SBUs. This is a complex task in a multi-business firm as SCMOs often have to accommodate multiple SBUs. Especially considering that each SBU has its own distinctive business model, which results in a unique combination of customers, products,

demand patterns, and supply base issues. One SCMO executive provided an illuminating synopsis regarding the diverse SBUs he supports:

> "We have about 50 different business units and they're like having 50 kids around the table sometimes. They're all different; they're all faced with different market dynamics and different market pressures. We'll go all the way from commodities, where we've got miles and miles of pipeline moving hydro-carbons around, all the way out to electronic materials, where these guys are making pads that are used to put nanometer finishes on silicon chips and we've got everything in between. So that gives you some idea of the breadth and the differentiation of the businesses."

To further complicate the SCMO manager's task, supply chain needs are not static. The needs of the SBUs change as they keep pace with different market pressures. We asked managers to describe events and conditions that eventually precipitated or drove organizational change in their SCMOs. Respondents primarily viewed SCMO structural change as being driven by internal environmental pressures, such as an SBU modifying its strategy or changing its leadership. However, managers clearly identified that these internal environmental pressures were triggered by changes in the external environment.

Our next area of inquiry focused on how SCMO leaders perceived the need to change based on the above environmental pressures. Manager's information gathering routines varied from firm to firm. On the informal side of the spectrum, managers stated that they stayed abreast of events and trends in their business environment by attending industry trade association conferences, reading various business publications, networking with peers within and external to the firm, and communicating with leadership. Managers on the structured end of the spectrum performed similar activities. However, activities were carried out in more

depth and regularity and were input to the firm's formal strategic planning and risk management processes. Managers suggested that it was important to be proactive in understanding emerging issues that may trigger the need for organizational change. One SCMO VP reflected:

> "How do you brainstorm or assess what might hit us, how do you look at government legislation proactively and go build a proactive list of things to go work on versus reactionary? I would say that's the key theme of this whole alignment with my partners [referring to SBU leaders within the firm] is trying to address problems more proactively than reactionary."

These activities echo suggestions contained in the environmental scanning literature. Environmental scanning is a searching mechanism by which managers sense and interpret possible emerging threats and opportunities through information gathering activities (Hambrick, 1982). The means used by organizations to scan the environment are typically defined by the source of the data, such as internal, external, personal, or impersonal sources (Daft and Weick, 1984). The result of environmental scanning is used as input into an organization's goal and strategy development activities (Dess 1987). Typical information sources cited by field interview participants included customers, suppliers, competitors, enterprise resource planning (ERP) systems, business and professional associates, trade association events, printed and electronic media, firm lobbyists, and government officials.

Once managers sensed the needs of the firm and/or SBUs were changing, SCMO managers had to determine how the SCMO can contribute to meeting those needs. If the SCMO was able to meet the new need with its existing capabilities, then an organizational structure change was not required. However, if the SCMO needed to develop a new

organizational capability, oftentimes managers made structural changes to help enable the development of the new capability. Table 3-5 contains examples of SCMO capabilities that managers identified as being needed to respond to the changing needs of the firm or its SBU's.

Table 3-5: Types of SCMO Capabilities Needed to Meet the Firm's Changing Needs

Respond quickly to unpredictable demand
Rapidly introduce products to target markets
Understand and keep pace with changing customer requirements
Deliver high levels of customer satisfaction
Customize product mix, quantities, and deliveries
Develop a single point of contact for customers
Create common standards
Increase process efficiency
Leverage commonalities across SBUs
Balance business goals with consistency and efficiency goals
Adapt and scale operations to accommodate new business while maintaining current business base

To translate desired capabilities into structure changes, managers created alternative organizational design solutions to facilitate the desired capability development. Alternative design solutions typically consisted of a blend of different processes, technologies, and/or skills. The processes and technology part of this equation was oftentimes the task of "capability building groups". These groups consisted of functional experts that design and deploy new processes and technologies, which often involved structural change. Design solutions were typically developed jointly and tailored for a given SBU to provide the next breakthrough capability for the business. The people skills were usually managed and developed by SCMO leaders. The following quote was indicative of how managers viewed the relationship between employee skills and organizational capabilities:

> "What we've learned is if you want to optimize something quickly, what's very important for us and our structure, it's the way we develop our people as well moving them across [businesses]…for an understanding of the consumer and the market and the pricing differences in the marketplace, and the channels. And then take them into another business, because at the end of the day what we're doing is we're building supply chain leaders where our chairman can walk in tomorrow, tell us he wants to get in any business, make it up, medical devices we don't care. Prepare people for material flows, for physical flows, for market dynamics under any set of circumstances."

Finally, managers designed how the work should be accomplished for each design alternative by addressing the following questions for each alternative: What degree should the activity be coordinated with other activities? What are the purposes of coordinating this activity? Which level in the organization should own the decision making rights? These questions allowed managers to match appropriate structures to the appropriate degree of differentiation or integration required for each design alternative.

One limitation of this research is that we did not acquire a detailed understanding of what information sources managers used in developing and evaluating structural change alternatives. For example, did SCMO managers use benchmark other firms, brainstorm internally, hire consultants, or other sources to develop and evaluate alternative structural designs? We recommend that future studies investigate which information sources managers relied on.

3.2.3 Modify SCMO Structure

In this phase of the structural change process we include several steps that managers highlighted as key elements to the success of the new structure. The first step is to *decide* which structural alternative should be implemented. Managers frequently expressed that

SCMO structural changes not only affected the SCMO itself, but also affected other organizations within the firm. This interdependency complicated structural change initiatives as decision rights of supply chain activities could be centralized, decentralized, or shared among corporate, SBU, and functional organizations (i.e., a hybrid structure). Many of the companies we interviewed had hybrid structures where the SCMO controlled global decisions (i.e., cross-geography and cross- SBU) and the SBUs controlled local decisions. Manager's indicated that implementing SCMO structural changes when decision making was shared was more complicated compared with centralized or decentralized structures as the following quote implies:

> "Where we get to initiatives that get closer to other aspects of somebody's operations it causes things to go slow, or if somebody feels like you're taking something away from them, they're ability to go down that path with you changes dramatically… our success in driving change management and kind of winning hearts and minds of these other stakeholders who need to change with us. Almost everything we do we do with other people, there's very little that we can do independent of other folks."

In these situations, decisions involved leaders from corporate, SBU, and functional organizations. Governing forums existed to facilitate decision making with regards to choosing a structural alternatives. Specifically, the governing body would seek to understand how proposed supply chain structural changes affected both business and functional goals. For example, when the SCMO was developing a new global process, business leaders would assess impacts to their operations and provided feedback and recommendations. This process also worked the other way, where SCMO leaders reviewed impacts on global operations resulting from proposed changes to local supply chain structure initiated by SBUs.

The next step was to *implement* the structural design. Managers described two types of change management processes associated with implementing the new structural designs. The first involves communicating the plan to stakeholders outside of the SCMO (e.g., SBUs, customers) and ensuring a smooth transition from the old structure to the new structure. One SCMO leader provided the following insight:

> "We have an overall kind of change management plan because this is a new organization and it evolves into a set of teams that are essentially working on various things from communication to stakeholders. We do a lot of stakeholder interviewing and 'actioning' against external stakeholders for our organization to make sure we're tracking against what we've committed to do for them, what they want and need."

The other type of change management required for a smooth transition to a new structural design is internal to the SCMO. Managers emphasized the critical nature of assisting employees to become familiar with new structure changes. Specifically, ensuring employees understand their new roles and expectations, as well as how they are personally affected:

> "It's all about change management. Believe it or not the biggest investment in capability for my people over the last year plus has been formal change management capabilities, that's what it's all about. And it all gets back to being personal in most cases, either someone's personal risk or peril. In many cases people will leave the opportunity for organizational improvement to the side because they either consciously or sub-consciously perceive a risk to themselves."

Managers stated that *measuring* important attributes of the desired outcome is another key step to perform during the structural change transition. Managers monitored several key measures during structural change transition periods, including: customer service level, replenishment schedule, types of forecasts to expect, stock availability, inventory level, and demand fulfillment level for all product lines. When other internal organizations were involved,

these key performance indicators (KPIs) were typically embedded in service level agreements to ensure service did not decline and to assess progress towards the desired effect of the structure change. One SCMO manager described the nature of the discussion between SCMO and SBU leaders:

> "We [referring to SBU and SCMO leaders] monitor the cost of the supply chain, efficiency of the supply chain, inventory management, customer service, and responsiveness. So we do monitor that and we roll it up by country, by region up to global so it's kind of both. We want to detect if there are issues and we also look at the projects going forward to improve what we set out to improve."

The final step observed in the SCMO structural change process is the need to continue to *adapt*. Managers clearly communicated that structural changes are not one-time only decisions. Rather, managers revisited organizational design decisions regularly. Sometimes adjustments were needed if desired performance levels were not met during design implementation. Other times new changes in the internal of external environment caused SCMO leaders to reevaluate the current structural design; thus starting the process over again.

3.2.4 SCMO Structural Change Process

Figure 3-1 depicts the emerged SCMO structural change process as described by the SCMO leaders in our interviews. It should be noted that Figure 3-1 and Table 3-6 depict a generalized process flow. Although depicted serially, process steps may occur concurrently and/or iteratively.

Figure 3-1: SCMO Structural Change Process

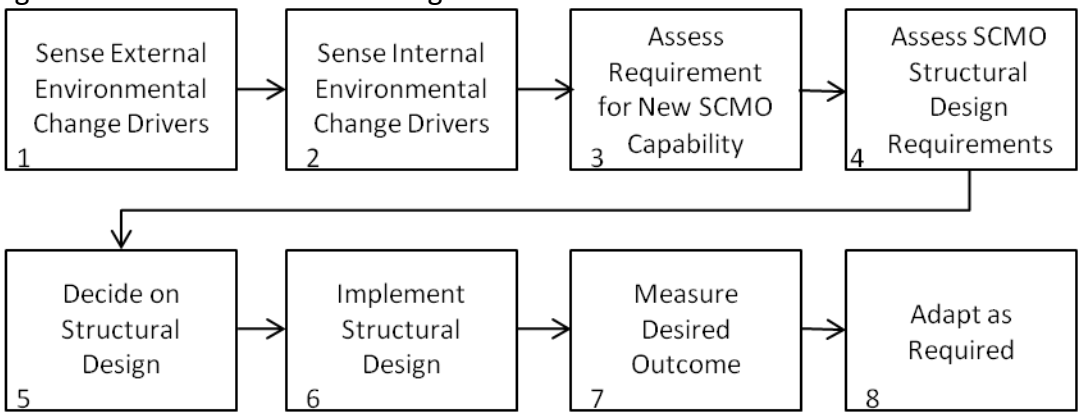


Table 3-6: SCMO Structural Change Process Description

Process Step	Activity Description
1. Sense External Drivers	Managers at all organizational levels of the firm gather and interpret information regarding emerging threats and opportunities external to the firm
2. Sense Internal Drivers	SCMO leaders gather and interpret information regarding emerging changes internal to the firm that can affect the supply chain related needs of the firm and/or SBUs
3. Assess New Capability Requirements	Managers assess if a new SCMO capability is required to meet the new needs of the corporation and/or SBUs
4. Assess Structural Design Alternatives	Managers assess if SCMO structural changes are required to support organizational capabilities from Step 3. If so, structural design alternatives are developed
5. Decide on Structural Design	Managers, in conjunction with affected stakeholders, decide which structural design alternative to implement
6. Implement Structural Design	Managers execute the change management plan with affected stakeholders and SCMO members
7. Measure Outcome	Measure the desired outcomes of the SCMO structural change
8. Adapt As Required	Adapt the SCMO structure as necessary to achieve the desired outcomes or to address new environmental change drivers

3.2.5 Conclusions and Future Research

The primary purpose of this research was to examine how global firms change their SCMO structure. Specifically, we address three research gaps in supply chain related literature: 1) the absence of studies examining SCMO structural change at a multifunctional unit of analysis; 2) the lack of consensus regarding the characterization of the organizational change process; and 3) the limited comparison between the results from organizational change process studies and existing organizational change theories. In Part 1 of this study we addressed the first two of these three research gaps. The conclusions for research gaps one and two are discussed below.

Gap #1: Unit of Analysis

As discussed in the previous chapter, previous research has examined organizational change at three levels: the firm population level, the firm level, and the functional department level. However, SCMOs do not fall neatly into any of these three categories. First, SCMOs are not stand-alone "firms" so organizational change processes focused on firm population and firm level units of analyses may not describe SCMO change phenomena adequately. Specifically, change theories at these levels do not capture many of the SCMO change process activities listed in Table 3.6. A detailed evaluation of the similarities and differences between the SCMO change process and existing structural change theories is discussed in the next chapter and summarized in section 4.2.7. Second, SCMOs generally manage the activities of more than one traditional functional department, and, thus it is not clear if organizational

change processes focused on functional department levels (as the unit of analysis) are applicable the SCMOs. This study addresses this concern by considering organizational change from a multi-functional department level. This unit of analysis was highlighted in our research sample which consisted of senior SCMO leaders responsible for broad supply chain related functional areas.

We posit that SCMOs differ from most single-functional organizations in two primary ways. First, SCMO activities may significantly impact the financial statements of the firm and the individual SBUs they support. Second, SCMOs face a high degree of structural complexity that does not generally exist within a single functional departmental. These two differences highlight the need for a multi-functional perspective as the unit of analysis for studying SCMO organizational change. Each difference will be described in more depth below.

SCMO activities and resources, like more narrow functional areas, are extremely important to SBU leaders. Specifically, SCMOs contribute to both the top line and the bottom line of the SBU profit and loss statement (P&L). For example, SCMOs are directly involved in generating revenue via several customer accommodation activities (e.g., "order-to-cash" actions). On the expense side of the P&L statement, SCMO activities play a significant role in controlling the cost of goods sold as SCMOs typically have responsibility for a significant percentage of the direct spend, as well as the assets related to manufacturing and distribution. Therefore, multifunctional SCMOs differ from many functional organizations as SCMOs significantly contribute to both the top line and the bottom line of the SBU P&L's.

Organizational structural complexity is another area where SCMOs may differ from other functional organizations. Specifically, SCMO structural complexity can arise from the number of its operating locations, as well as the broad and varied scope of responsibility (differences between types of functions, such as, plan, source, make, deliver, return). The number of locations SCMOs operate in creates complexity given that the SCMO is highly dependent on the needs of individual and potentially different SBUs, as well as the needs of the entire organization. This is a complex task in global, multi-business firms as SCMOs often have to accommodate multiple SBUs which cross divergent operating geographies. Each SBU may have its own distinctive business model resulting in a unique arrangement of operating locations based on the SBU's customers, products, channels to market, and supply bases. This, in turn, can mean that the scope of responsibilities can vary as well. For example, "source" in one SBU may require extremely different SCMO capabilities than required in another SBU. The combination of the SCMO's number of operating locations, the heterogeneity of its operations, and the constantly changing business environment present a complex and dynamic organizational problem for the SCMO. Specifically, a SCMO must consider how to best organize such that individual SBU needs, as well as overall corporate goals are satisfied at an acceptable cost.

Therefore, SCMOs differ from most other functional organizations in two primary ways. First, SCMOs can significantly impact the financial statements of the SBU they support and, second, SCMOs face a high degree of structural complexity. Both of these differences affect organizational change, although in different ways. First, interdependence is created between

SCMOs and their SBUs due the inextricable role SCMOs play in SBU operations. SCMO-SBU interdependence creates a dilemma for SCMOs when considering organization structure changes. In highly interdependent relationships, changes in one organization are likely to drive changes or impacts to the other organization in which the interdependence exists. As such, organization changes in SCMOs are likely to require some type of change to its SBUs. For example, SBUs may be asked to coordinate business requirements at a global level, or change suppliers, or even lose direct administrative control of a portion of their resources. Based on field interviews, this situation is likely to generate conflict between organizations. This is especially the case when SBUs are asked to relinquish direct control over an activity for promised improvements in firm or SBU performance through the SCMO.

A high degree of SCMO-SBU interdependence suggests that some degree of negotiation takes place when changes from one organization drive changes to the other organization. This phenomenon is manifested in steps 5 and 6 of the proposed SCMO structural change process. Specifically, step 5 describes how SCMOs and SBUs work through such conflicts to decide which structural alternative should be implemented. Once an agreement is reached, step 6 illustrates how implementing structural changes are agreed to between SCMOs and SBUs to ensure continuity of SBU operations.

The second area where SCMOs are likely to differ from many functional organizations is the degree of structural complexity. The degree of SCMO structural complexity affects the level of knowledge required to execute the structural change process. Specifically, SCMOs need to

understand numerous supply chain work types and any associated technologies required based on the various demands placed on SCMO operations to support the needs of the firm and its individual SBUs. In addition, the SCMO needs to be knowledgeable about synergies and other types of interactions across functions, across SBUs, and across global operating locations. Field interviews identified that many firms established capability building groups made up of the firm's most experienced individuals to meet the structural complexity challenge faced by SCMOs. This phenomenon was identified and discussed in step 4 of the proposed SCMO structural change process.

Therefore, we believe that steps 4 through 6 of the proposed structural change process are the most distinctive to a multifunctional SCMO application. We are not inferring that steps 4 through 6 do not apply to single function organizations. Rather, the specific activities identified in these process steps appear to be more germane to SCMOs than single function organizations. Again, the specific activities in steps 4 through 6 emerged from the interviews resulting from substantial SCMO-SBU interdependence and SCMO structural complexity. Given that SCMOs and single function organizations differ in these two areas, it is likely that the specific activities in steps 4 through 6 may not have emerged as robustly from interviews with managers from single function organizations.

Gap #2: Lack of Consensus

This research contributes in two ways to the body research associated with structural change in supply chain related organizations (see Table 3-7). First, the structural change

process proposed in Figure 3-1 explicitly allows change to initiate from different organizational levels within the firm. For example, change can start at the corporate level, then drive change at the SBU level, which in turn can drive change to the SCMO. Alternatively, change can initiate at the SBU level and drive change in the SCMO. Finally, change can be initiated by the SCMO itself.

This is an important feature as comparing results among the studies contained in Table 3-7 is difficult as each study started at a different location in the structural change process. For example, the "Miscellaneous Drivers" model presented in Johnson and Leenders (2003; 2008) looks at one antecedent to structural change in the purchasing organization. Conversely, Johnson and Leenders (2003; 2008) other two change processes models start with the environment, and then examines organizational change down through the firm's hierarchy, and then finally to structural change in the purchasing organization. The remaining studies in Table 3-7 start at points in between these two extremes. Therefore, the proposed process allows SCMO structural change studies to be positioned within a framework such that comparisons among structural change studies can be made in a straight forward manner. For example, in the above illustration, Johnson and Leenders' (2003; 2008) "Other Drivers" model begins its change process at Step 3 of Figure 3-1. Likewise, Johnson and Leenders' (2003; 2008) other two models begin the change process at Step 1 of Figure 3-1.

Table 3-7: Supply Chain Related Organizational Change Literature

Author	*Purpose of Organizational Change Portion of Study*	*Organizational Focus*	*Organizational Structure Definition*	*Hypothesized Change Process*	*Method*	*Results Compared to Existing Theory?*
Bowersox & Daugherty 1987	Study the evolution of logistics organizations	Logistics organization	Process, market, or information orientation of the logistics organization	Firm Strategy change➔ Logistics structure change	Multi-case study	Results reported to be marginally consistent with stage theory -- limited analysis reported
Johnson & Leenders 2001	Why do purchasing organizations make major structural changes & what is the change process	Purchasing organization	Level of centralization in purchasing organization	Environment➔Firm strategy change➔Firm structure change➔Purchasing structure change	Multi-case study	Results reported to be consistent with contingency theory -- No analysis reported
Johnson & Leenders 2003	How and why firms make major changes to purchasing responsibilities	Purchasing organization	Span of control within purchasing organization	Three Processes indentified: 1) Same as in Johnson & Leenders 2001 (above) 2) Environment➔Firm strategy change➔Purchasing structure change 3) Misc drivers➔ Purchasing structure change	Multi-case study	Results reported to be consistent with contingency theory and inconsistent with stage theory -- limited analysis reported

Table 3-7 (cont'd)

Author	*Purpose of Organizational Change Portion of Study*	*Organizational Focus*	*Organizational Structure Definition*	*Hypothesized Change Process*	*Method*	*Results Compared to Existing Theory?*
Johnson & Leenders 2008	Study 6 aspects related to a firm appointing its first chief purchasing officer	Purchasing organization & other senior management	First CPO appointment and reporting line	Same 3 processes as in Johnson & Leenders 2003 (above)	Multi-case study	No
Kim 2007	Study the relationship between SCMO organizational structure and the developmental stage of SC integration	SCMO	Organizational groupings and hierarchy	SCMOs develop according to the life-cycle model of increasing internal integration first, followed by external integration.	Survey	Results reported to be consistent with stage theory
McIvor & McHugh 2000	How the purchasing organization changed after adopting a collaborative buyer-supplier perspective	Purchasing organization	Organizational groupings and cross-functional teams	BU strategy change➔Purchasing strategy change➔ Purchasing capability change➔ Purchasing structure change	Single case study	No

Table 3-7 (cont'd)

Author	*Purpose of Organizational Change Portion of Study*	*Organizational Focus*	*Organizational Structure Definition*	*Hypothesized Change Process*	*Method*	*Results Compared to Existing Theory?*
Parker & Anderson 2002	How firms successfully manage specialized, quickly changing supplier networks	Multiple internal supply chain related functions	Cross-functional & cross-supplier integrators	Outsourcing strategy change➔Organizational capability change➔ Structure change	Single case study	No

The second contribution to this body of research is that the proposed process provides a detailed view the change process. This feature helps to explain the apparent discrepancy between the studies contained in Table 3-7. For example, Bowersox and Daugherty (1987) and Johnson and Leenders (2001; 2003; 2008) suggest that changes in strategy drive structural changes. Whereas McIvor and McHugh (2000) and Parker and Anderson (2002) suggest that changes in strategy drive capability changes, which in turn drive structural changes. Both views are consistent with the proposed process in this study and can be explained within its context.

McIvor and McHugh (2000) and Parker and Anderson (2002) were single case studies that examined firms wrestling with specific issues (i.e., collaborative relationship building and outsourcing, respectively). Accordingly, McIvor and McHugh (2000) and Parker and Anderson (2002) focused on why strategy changes affected organizational structure. McIvor and McHugh (2000) and Parker and Anderson (2002) found that the organizations required a significantly different capability than what they possessed. Both McIvor and McHugh's (2000) and Parker and Anderson's (2002) studies found that structure changes were implemented to appropriately develop the newly desired capabilities. However, McIvor and McHugh's (2000) and Parker and Anderson's (2002) studies did not examine the macro factors that led these firms to change their strategies. Whereas Johnson and Leenders (2003) performed a multi-case study and suggest that changes in strategy drive structural changes. Our study does not conflict with this notion as our detailed view provides an intervening reason that links strategy to structure (as did McIvor and McHugh (2000) and Parker and Anderson (2002)). Johnson and Leenders' (2003) third model posits that other drivers can also lead to structural change. The

other drivers which are discussed in Johnson and Leenders' (2003) are associated with new organizational capabilities. We suggest that all three of these change processes, when viewed as a whole, can be situated in the structural change process presented in Figure 3-1.

The proposed SCMO change process also contributes to practice in three important ways. First, the SCMO change process identifies which pressures in the global environment are likely to cause SCMO structural change. This can help managers pinpoint which issues to focus on in today's information saturated environment. Second, this study identifies several information sources in which managers can use to recognize pertinent change drivers. Finally, this study provides a structured approach to respond to environmental pressures that may create incongruence between the firm and its business environment.

While grounded theory methodology is appropriate for the current investigation, it does have limitations. The goal of grounded theory methodology is to inductively extract theory from a sample rich in the phenomena of inquiry (Randall et al., 2010). Inductive theory is derived from qualitative data which is specific to the particular sample, and therefore, has not tested for generalizability beyond the group of firms interviewed. This work requires subsequent deductive investigation, through which its generalizability can be developed through quantitative methods. Specifically, this study provides the initial steps for future quantitative studies to test the validity of the new constructs, propositions, and the generalizability of the SCMO structural change process.

This study focused on large firms that pursued global strategies. Therefore, the findings contained within this dissertation may not be applicable to small firms or firms that primarily serve domestic customers. In addition, firms that participated in this study were headquartered predominantly in the United States. As such, cultural differences (e.g., norms, values, and meanings) associated with non-US based firms are not accounted for in this study. Finally, firms that participated in this study were in the manufacturing industry, and therefore, results may not be applicable to retailers and service firms.

CHAPTER 4
AN ORGANIZATIONAL CHANGE THEORY ASSESSMENT

4.1 Methodology

This chapter reviews several organizational change theories and compares and contrasts them to the proposed SCMO structural change process developed in chapter 3. The purpose for doing so is three-fold. First, this comparison will provide theoretical validation for the empirically derived SCMO change process. Second, it will identify which change theories are useful in explaining phenomena contained in the SCMO structural change process. Finally, this comparison may highlight areas where existing theories could be extended to incorporate phenomena found in the SCMO structural change process but are not directly addressed by the theory. This chapter begins by explaining how candidate change theories were chosen to compare and contrast with the SCMO structural change process. Next, for each selected change theory a brief theory overview is provided, as well as similarities and distinctions to the proposed SCMO change process are discussed. Finally, conclusions and future research paths are presented.

The field of organizational change is broad and there are numerous change theories from which to compare and contrast the SCMO change process (for an in-depth review of organizational change see Burke, 2008; Demers, 2007; Poole, Van de Ven, Dooley, K., and Holmes, 2000). However, there are two fundamental differences among organizational theorists and within the body of organizational research (Scott, 2003). The first is the level at which the phenomenon of interest is conceptualized and studied. The second difference is the

perspective and assumptions that the theory employs. As such, we use these two criteria to determine which organizational change theories should be addressed in this study.

The first criterion used to evaluate each theory's explanatory power regarding the SCMO chance process was the level of analysis. The level of analysis used in organizational research typically resides at one of three hierarchical levels: individual, organizational, or system level. At the *individual level*, the focus is on the behavior of and interaction among individuals within the organization (Katz and Kahn 1966; Weick 1995). Researchers operating at this level treat the organization, itself, as the environment and study its effect on individuals' attitudes and behaviors. At the *organizational level*, the primary areas of interest include structural characteristics and social processes of the organization. The focus is on a vast array of organizational characteristics, such as strategy, structure and process (Galbraith, 2002; Miles and Snow, 2003); differentiation, integration, and departmental conflict resolution (Lawrence and Lorsch, 1967); and how political processes influence the exchange process (Pfeffer and Salancik, 1978). Finally, researchers who focus on the *system level* view the entire organization as an entity which operates in a larger system of independent and interacting organizations. At this level, authors have examined classes of organizations and the environment (Hannan and Freeman 1989) and how organizations are embedded in differing sets of norms and rules which govern the nature of relations among organizations (DiMaggio and Powell 1983). This study examines the SCMO at the organizational level of analysis. Therefore, theories that operate at the individual and the system level were not considered.

The second criterion is to evaluate multiple perspectives. Traditionally, organizational perspectives have varied based on how the theorists have defined an organization. Scott (2007; p. 27) indicated that "How we define 'organization' shapes how we think about the phenomenon - what we see as essential, and what we ignore as irrelevant." Three critical debates concerning how organizations are defined have arisen from the varied perspectives of organizational theorists. While numerous authors have chronicled each side (for an in-depth review, see Astley and Van de Ven, 1983; Demers, 2007; and Weick and Quinn, 1999), we summarize the debates as follows:

1. Rational or social construction - The rational perspective places emphasis on rational design, planning, and the ability to control circumstances towards the pursuit of organizational goals. The social perspective views organizations as socially constructed systems subject to the frailties of human agency, where importance is given to the effect of behavioral or social conduct. The social and institutional context plays a central role, including culture, social networks, power and politics. Power, rather than rationality and efficiency, is viewed as important to understand the internal dynamics and external actions of an organization (Scott, 2003).
2. Adaption or selection - The adaption perspective emphasizes an organization's ability to purposefully adapt to its changing environment through a series of design changes planned and executed by a master designer. The selection

perspective views organizations as evolving through indeterminate processes of an intractable environment that determines which organizations survive.

3. Evolution or transformation - The evolution perspective suggests that organizations follow a path of incremental and cumulative adaption. The transformation view proposes that organizations remain static most of their existence and change suddenly via radical transformation.

Based on the two selection criteria, six theories were identified. Table 4-1 lists the six theories selected for this study and classifies each theory in relation to the three organizational change debates. Contingency, resource dependence and strategic choice theories are relatively well accepted in supply chain literature, whereas configurational, genealogical and complex adaptive system theories are not commonly used in supply chain literature.

Table 4-1: Candidate Theory Positioning in Organizational Literature

Theory	Rational (R) or Social Construction (SC)	Adaption (A) or Selection (S)	Evolution (E) or Transformation (T)
Contingency	R	A	E
Resource Dependence	SC	A/S	E
Strategic Choice	R/SC	A/S	E
Configurational	R/SC	A	E/T
Genealogical	R/SC	A/S	E
Complex Adaptive Systems	R/SC	A	T

4.2 Results

This section discusses each theory listed in Table 4-1 in-turn and highlights where the process of change is explicitly addressed in the theory. This section is organized in the following manner. First, a brief theory overview is presented and each theory is defined in terms of four

key aspects of the theory: the organization, its environment, its actors, and its change process. The following four aspects were chosen as these aspects are the general boundaries that differentiate how the structural change process is perceived by researchers (Bacharach 1989):

1. Organization - Describes how formal and informal organizational attributes are viewed. Formal attributes include explicit organizational rules, roles, and structure, whereas informal attributes refer to the evolving attributes that are idiosyncratic to an organization such as culture, social networks, power and politics (Scott, 2007).
2. Environment - Describes the manner in which the external environment affects how firms operate by making demands, imposing constraints, and providing opportunities to the organization (Nadler and Tushman, 1997).
3. Actors - Refers to the attributes of the organizational members, such as, skills, abilities, mindsets, knowledge, and demographic characteristics (Scott, 2007).
4. Change process - Identifies specific mechanisms or steps which organizations use or experience as they change from one structural state to another.

The following sections identify similarities and distinctions between the SCMO structural change process and existing theories. Next, areas where different theories offer a detailed perspective into specific SCMO structural change issues are identified. Finally, comparisons and theory applications are summarized in Table 4-2.

4.2.1 Contingency Theory

Theory Overview

The basic premise of contingency theory is that organizational design decisions are contingent on environmental conditions. The general hypothesis is that the best adaption and performance for as firm occurs when internal organizational features are appropriately matched with the demands of the environment (Donaldson, 2001). The fundamental belief is

that organizations make structural changes in response to a constantly changing environment in an effort to maintain alignment (Donaldson, 2001). The outcome is a structural response to specific environmental contingencies that result in a new internal-external equilibrium (Demers, 2007). The following describes how this theory views key organizational change attributes:

> Organization - Viewed as an integrated system interacting with its environment. The organization is characterized by formal organizational attributes, such as centralization, formalization, standardization, functions, processes, or systems (Donaldson, 2001; Lawrence and Lorsch, 1969). Informal organizational attributes (e.g., such as culture, social networks, power and politics) are assumed not to exist.
> Environment - Plays a predominant role and is characterized as being deterministic and unchangeable by a firm. It is objectively characterized by the task environment (i.e., the "tasks" an organization must accomplish given its particular environment in which the organization competes). The task environment is typically defined by its customers, suppliers, competitors, socio-political groups, and technology (Thompson, 1967). The task environment presents different constraints and opportunities to organizations based on the degree of uncertainty, dynamism, complexity, competition, and munificence (Donaldson, 2001).
>
> Actors - Are not directly addressed in the theory. Implicitly, key actors are top managers who have the ability to think strategically, as well as rationally plan and implement required changes. Managers willfully choose to change the organization with purposeful action. However, managers' choices are severely constrained in that they are only able to react to environmental pressures that cause misalignment (Demers, 2007). Environmental pressures are objectively perceived. Specifically, the assumption is that attributes of the environment exist independent of the observer and these attributes can be known without bias.
>
> Change Process - Regarded as a process of gradual adaption which is deliberate but reactive to the environment (Lawrence and Lorsch, 1969). The process of change itself is not directly addressed. However, the input is a change in the environment that affects the alignment between the environment and the firm. The outcome of the process is a structural response to specific contingencies that result in a new internal-external equilibrium (Demers, 2007).

Theory Assessment

Contingency theory follows the rational adaption change model which highlights three broad process steps which enact change (Demers, 2007):

1. A change in the environment creates misalignment to occur between the environment and a firm;
2. A firm makes a structural design adaptation in response to this misalignment; and
3. Alignment between the environment and the firm is restored as a result of the firm's adaption.

The rational adaption model is consistent with the proposed SCMO change process. Contingency theory explains why organizations change. Specifically, contingency theory highlights the importance of matching structural design decisions to environmental contingencies.

However, there are several areas where the proposed SCMO change process and contingency theory differ significantly. The first distinction is that contingency theory treats the process of change as a black box and does not explain how structural change takes place. Although the stimulus and response events are addressed, the theory is silent with regard to activities associated with structural change. Specifically, contingency theory does not directly address activities such a how organizational actors make decisions or what specific actions

actors take before or after the structural response. Second, the firm's organizational actors are assigned an indirect role in the change process, as actors and their actions are not directly addressed in contingency theory. However, it is assumed that the firm's actors are the ones who respond to changes in the environment and develop and implement structural design adaptations.

The proposed SCMO structural change process provides insight into how managers perceive their firm is misaligned with the environment (steps 1 and 2). In the proposed process, manager's rationality is bounded. Specifically, managers do not objectively know which environmental pressures force their firm into a state of misalignment. Rather, managers subjectively scan the external and internal environment in search of information regarding emerging threats and opportunities. As such, the proposed process suggests that information gathering routines are required as managers are forced to process environmental events and trends.

In summary, contingency theory explains why organizations change, but, does not address how organizations actually change. The proposed SCMO structural change process in this research offers additional insight by describing actions firms take to bring about structural change. Steps 3 through 6 describe how managers assess whether or not a new SCMO capability is required to meet the firm's changing needs and if SCMO structural changes are required to develop a new capability. If a structural change is needed, SCMO managers develop and implement the new structural design in the context of the firm's power bases, politics, and

culture. As such, contingency theory provides limited explanatory power as a change model for SCMOs.

4.2.2 Resource Dependence Theory

The resource dependence model is primarily concerned with the survival of organizations as they interact and manage relationships with other organizations within the environment (Pfeffer and Salancik, 1978). "Interdependence, when coupled with uncertainty about what the actions will be of those with which the organization is interdependent, leads to a situation in which survival and continued success are uncertain" (Pfeffer, 1997; p. 63). A fundamental premise is that organizational survival is dependent upon acquiring resources from the environment (Pfeffer and Salancik, 1978). Resource dependence theory is not solely focused on organizational change. Rather, the theory's purview is more general as it examines decisions regarding organizational survival, which may or may not involve organizational change.

> Organization - Social and institutional context play a central role in resource dependence theory. Power drives internal dynamics and external actions of an organization (Scott, 2003). Power can vary among external organizations and is a function of specific resources and needs between organizations (Pfeffer, 1997). Organizations are not autonomous and are constrained by interdependencies with other organizations. Pfeffer (1997; p. 63) states that, "Organizations tend to comply with the demands of those interests in their environment which have relatively more power."
> Environment - The environment is generally characterized in terms of how much a firm depends on external organizations for survival, as well as the amount of resources the firm controls. The environment is not completely deterministic and can be changed, implying a bi-directional relationship. For example, when organizations deliberately take action to manage external interdependencies and resource constraints, "new patterns of dependence and interdependence" (Pfeffer, 1997; p. 63) emerge. The environment is subjectively perceived and interpreted by managers.

Actors - The social model of behavior is emphasized and the assumption of bounded rationality applies to its actors. The role of managers is marginalized to that of "an advocator and active manipulator of constraints" (Pfeffer and Salanick, 1978; p. 19). The implication being that individual action has little effect on organizational behavior. Managers willfully choose to change the organization with purposeful action. However, manager's choices are constrained by their organization's power position relative to other organizations.

Change Process - The organization deliberately takes action to manage external interdependencies and resource constraints in order to preserve its survival. The theory does not directly describe the process of structural change. However, it can be assumed that the process of change is important to managers as they take action to scan the environment to formulate organizational responses to ensure the continued survival of the organization (Demers, 2007).

Theory Assessment

The proposed SCMO structural change process is consistent with resource dependency theory in three major areas: the key role external organizations play in driving structural change; the overall process of change and activities in each process step; and, the importance of social construction in organizations. The first similarity is that resource dependency theory recognizes the influence of external pressures on organizations and provides a more deterministic view of the environment relative to contingency theory. Resource dependence theory asserts that managers have little effect on organizational behavior (Pfeffer and Salanick, 1978). For example, while a manager may understand a firm's strategy is not being implemented successfully, that manager may be powerless to change the organization or its strategy.

Studies that use resource dependency theory generally consider the firm as the unit of analysis (Hillman, Withers, and Collins, 2009). As such, ownership boundaries are used to

demarcate internal from external organizations. The unit of analysis in this study is the SCMO, therefore, "external" organizations that influence SCMO structural change are external to the firm (e.g., customers, suppliers, competitors, and regulating agencies), as well as internal to the firm (e.g., corporate and SBU organizations). For example, one manager described the SCMOs power position relative to the SBUs:

> "The struggle is, unless [you are] at a corporate level and I'm talking at the CEO level, and [can] say this is what we're [i.e., SCMO] going to do and businesses this is what you must do…you're pushing boulders uphill. To say you've [i.e., SBUs] been buying supplies from this company for 15 years [but] now we're [i.e., SCMO] going to direct that and there is going to be a common spend and you've got to change suppliers…I mean boy, you just get all kinds of carrying on and gnashing of teeth."

Field interviews supported the view that the power position of external (and internal) organizations drove SCMO structural change. The first two steps of the proposed SCMO change process describe how SCMO change was encouraged due to external factors. SCMO managers were not autonomous in situations where organizations external to the firm exercised power over the SCMO. For example, several SCMO managers described how they had little influence regarding SCMO structural changes resulting from a competitor acquiring their firm. In addition, managers suggested that organizations internal to the firm were often influential in creating SCMO structural change. When a firm's leaders decided to reorganize the corporation as discussed in the internal drivers section, SCMO managers had little influence on the SCMO structural form. Similarly, SBUs exercise a significant degree of power over the SCMOs. This power relationship is inherent as SCMO's exist primarily to support the SBU mission. One SCMO VP explains:

> "Well I think the needs of the business are pretty important. You have to look at each business unit and determine what those needs are. We have different structures within our supply chain for the various businesses, either due to the fact that their business demands it or their business leaders are more comfortable with it and we can work around it. So we don't force a vanilla organization across everybody, we tailor it to the needs of the other regional businesses particularly."

The second area where the proposed process is similar to resource dependency theory is with regard to the change process. Resource dependency theory does not view the environment as completely deterministic (Pfeffer and Salanick, 1978). Rather, an organization deliberately takes action to manage external interdependencies and resource constraints in order to preserve its success and survival. Pfeffer and Salanick (1978) proposed several options that firms could use to actively manage external interdependencies, including mergers and acquisitions, inter-organizational relationships, boards of directors, political action, and executive succession. The research illustrated one of these actions whereby SCMO managers attempted to change their environment by establishing inter-organizational relationships with suppliers (or customers). SCMO leaders purposefully pursued initiatives, such as supply base rationalization, to reduce complexity. One SCMO leader explained this action in the following manner:

> "We rationalize the [supply] base to make sure that we're doing business with the right people. Then we contract with the right people both from a long term agreement perspective and a product support perspective so that we understand the lifecycle cost of that product for a substantial period of time. Then we continue to work with the suppliers to improve their performance and the last step of that process is to more fully integrate them into our business. That is the process, it's really a do loop that happens over and over again and we have reduced our supply base in a substantial way over the course of the last 10 years."

Another reason SCMOs form relationships with suppliers is to reduce resource constraints of the SCMO. Resource constraints may be tangible, such as an inability to employ competitive transportation or manufacturing capabilities, thus SCMOs may partner with a third party logistic provider or contract manufacturer. Resource constraints may also be intangible, such as lacking the necessary political relationships to gain access in a foreign market, thus SCMOs partner with influential local suppliers in the host nation. In such situations, SCMOs may form collaborative relationships with suppliers for the primary reason to draw resources from the environment. Collaborative relationships tend to develop "joint dependence" rather than the typical power-dependence asymmetry situation (Gulati and Sytch, 2007). Gulati and Sytch (2007) find that joint dependence is one means to reduce uncertainty and enhance performance. Similar findings regarding joint dependence in buyer-supplier relationships are ubiquitous in the supply chain literature (e.g., Dwyer, Schurr, and Oh, 1987; Krause, 1999; Whipple and Frankel, 2000). One manager described how the SCMO created joint dependence with suppliers, and in doing so, reduced uncertainty for the firm's SBUs:

> "We created a special agreement for our strategic suppliers…A lot of times we've got a lot of innovative ideas from our suppliers but they weren't necessarily matched with where the business was trying to go. So now what we really want to do is instead of more of a push affect we want a pull effect and having the businesses pull our suppliers in where there is an opportunity."

Another means to reduce SCMO resource constraints is to change the firm's power position through political action. Pfeffer and Salanick (1978) suggest that organizational actors can influence external "success-defining" organizations that possess power in order to provide social legitimacy to the firm (Meyer and Rowan, 1977; Westphal, Gulati, and Shortell, 1997).

Examples of success-defining organizations include political offices, public agencies, financial organizations, and non-governmental organizations. Resource dependency theory views such external organizations as elements of the environment that deterministically choose which organizations succeed and which organizations fail. However, resource dependency theory also suggests that there can be a bi-directional relationship between a firm and its environment, where a firm can change its own environment. An example of such a bi-directional relationship is when managers exercise influence through political action as one corporate SCMO executive noted:

> "Our team over there [in India] has been working with the regulatory [agencies] because there were some regulations that prohibited the use of that aircraft for certain applications. So we have been working with the government in India and the regulatory authorities to get that regulation changed. We've been successful to influence that change in regulation, that's going to open up a market for the [firm's product] that didn't exist three years ago."

The third area where the proposed process is similar to resource dependency theory is with regard to the importance of an organization's social construction. Resource dependency theory views the social and institutional context of the organization as playing a central role, including culture, informal social networks, power and politics (Scott, 2003). The social construction element was most pronounced when managers discussed implementing structural changes (step 6). One SVP from an innovative firm described how his predecessor failed to implement change by ignoring the SCMO culture and how an alternate path helped to manage change:

> "I was brought in and you could say I was commissioned with, you know the CEO at the time sort of had a vision of what he wanted based on our customers. There had been a predecessor who had not succeeded in driving that vision, part

> of it frankly I'll say because he actually did what the CEO said to do as opposed to figure out how to adapt it to the culture…So the culture of this place was interesting even though I may have had, you could say a mandate from the CEO it didn't matter, nobody here cares. This was place where positional authority isn't particularly well respected. Nobody is just going to mouth off to the CEO in a ridiculous way. I mean there's a degree of respect, but I came in and people were like, 'we don't care who you are.' And so until, as an individual contributor, almost I had to demonstrate some value through certain deals through certain concepts and then had to figure out the culture, which took a few months. I then put in place, alright here's how we're going to change, given how the culture works and how your incentives work…I chose to work it within the culture and structure that would enable it to survive and then change that culture from within."

This passage also highlights one major area where resource dependence theory differs from the proposed SCMO change process. This SCMO leader's actions seem to support resource dependence theory's view that the role of managers is marginalized to that of manipulating the organizational member's incentives and constraints. Again, the theory's implication is that individual action has little effect on organizational behavior. However, according to this SVP (who provided the above passage), the firm did change from a divisional structure, with completely independent SCMOs, to a matrix structure within a four year period. Further, the matrix structure has been in place and successfully operating for six years. From this manager's account, his long-term view of changing the firm's culture appears to have had a significant effect on the organization's behavior. Several SCMO leaders provided similar insight regarding how employee resistance to change can be reduced during implementation (step 6) by instilling new norms and behaviors. As such, one distinction between the proposed structural change process and resource dependence theory is that individual action can have a significant effect on organizational behavior.

In summary, resource dependence theory provides specific insight into several areas where SCMOs can improve their power position by reducing environmental dependence (Pfeffer and Salanick, 1978). Particular areas include developing buyer-supplier relationships, lobbying success-defining organizations, and negotiating with internal organizations (e.g., corporate and SBUs). In addition, the social and institutional view of resource dependence theory provides an appropriate lens to understand the role of organizational member resistance during structural change implementation. However, we found that managers can have a significant effect of structural change.

4.2.3 Strategic Choice

Strategic choice emphasizes the active role of key decision-makers who have the power to influence the organizational structure through a political process. "The strategic-choice approach essentially argues that the effectiveness of organizational adaptation hinges on the dominant coalition's perceptions of environmental conditions and the decisions it makes concerning how the organization will cope with these conditions" (Miles an Snow, 2003; p. 21). Initially, strategic choice was offered as a "corrective view" (Child, 1997; p. 43) to contingency theory's notion that organizations are deterministically designed based on their contingencies. Additionally, early versions of the strategic choice model did not focus solely on organizational change, rather it was broadly applied to organizational decision-making in general (Demers 2007). In a later conception, Child (1997) explains how conceptual refinements in the strategic choice model "can inform current thinking on organizational evolution" (Child, 1997; p. 44).

Organization - Social and institutional context of the firm plays an important role. Organizations are not autonomous and are constrained by interdependencies with other organizations.

Environment - The environment is not deterministic and can be changed, implying a bi-directional relationship. The environment is subjectively perceived and interpreted by managers.

Actors - The social model of behavior is emphasized and detailed assumptions of bounded rationality apply to its actors. Individuals are assumed to act as a collective termed the dominant coalition (Child, 1972). The role of these key decision-makers is central to the theory. The dominant coalition willfully chooses to change the organization with purposeful action. However, their choices are partially constrained by organizational and environmental factors.

Change Process - The dominant coalition deliberately takes action to influence organizational structure. Child (1997; p. 69-70) suggests the change process:

"Recognizes that the evaluation of information, from within an organization and from its environment, can lead to the identification of opportunities and problems. This encourages a learning process which proceeds towards action through debate, negotiation and the exercise of choice. The actions that are taken give rise to outcomes. Some of these outcomes may be internal adjustments, such as changes in structure, personnel establishment (size) and use of technology. Others may be oriented to the environment, such as new products and services, new suppliers, or the lobbying of public bodies or community organizations. The ongoing dynamic process being postulated is thus:

Information ➔ Evaluation ➔ Learning ➔ Choice ➔ Action ➔ Outcome ➔ Feedback of Information"

Theory Assessment

The proposed SCMO structural change process is consistent with strategic choice theory in two major areas: the ability of firms to purposefully adapt to their changing environment, as well as the environment's role in determining which organizations surive. and the political process of debate and negotiation that takes place between organizations within a firm.

Strategic choice theory recognizes a balance between choice and selection and offers several explicit provisions that are consistent with the proposed SCMO change process. Miles and Snow (2003; p. 20) suggest:

> "It seems highly implausible that organizational survival stems from environmental fluctuations which are seldom influenced by managers' responses to these conditions. Similarly, based on what is known about the cognitive limits of individual and group decision making, the argument that managers select appropriate organization structures with consummate rationality is also questionable."

According to Child (2007), choice can be both "pro-active" and "re-active." As discussed earlier, SCMOs can be pro-active by taking external initiatives, such as developing inter-firm relationships, or re-active by making internal adaptations to realign the firm's structure with the environment.

Similar to resource dependence theory, the external environment is seen to limit the scope for choice as it imposes certain constraints on organizations. One refinement to the original strategic choice conception posited by Whittington (1988) is the existence of both "action determinism" and environmental determinism. Action determinism suggests that "actions are selected according to in-built preferences" (Whittington, 1988; 524) and potentially limits the range of choices identified and evaluated by SCMO leaders. However, "these actor-related phenomena are to some extent the product of environmental conditions -- the quality of information and institutionally derived cognitive framing clearly are" (Child, 1997, p. 52).

Another refinement to strategic choice analysis since it was originally proposed is that additional elements of the institutional perspective are recognized. Specifically, external norms are allowed to affect the firm through its actors. Firms are affected by external success-defining organizations (e.g., public agencies, financial organizations, and non-governmental organizations) that have the potential to provide social legitimacy (Meyer and Rowan, 1977; Westphal, Gulati, and Shortell, 1997) to the firm. Although these success-defining bodies can constrain a manager's action, choice is still available. The dominant coalition can make choices to engage in external relationships and through choice may influence the success criteria applied by the success-defining organization.

One common challenge that global firms face is to manage the complexities related to achieving efficiencies across geographically separated markets, while at the same time being responsive to unique market demands (Gupta, 1987). Field interviews highlighted the prevalence of such competing objectives among corporate, SBU, and SCMO leaders. Governing forums between SBUs and SCMO managers were discussed in steps 5 and 6 of the proposed process where participants sought to balance business and functional goals. A key assumption in strategic choice theory is that there is some degree of goal conflict among key members in the organization. Cyert and March (1963) termed this allied group of senior decision makers within an organization as the dominant coalition. Goal conflict arises from different perspectives and interests among organizational leaders created by the division of labor and the disparity between the leader's internal and external contacts (Child 1972). Organizational goals are developed through a negotiation process among members of dominant coalition who

have partially shared interests (Cyert and March, 1963). The political process perspective in strategic choice theory allows "for an internal negotiation process through which there could be a coalescence of diverse initial action preferences into an agreed policy" (Child 1997; p. 51). As such, the theory vividly addresses the debate and negotiation phenomenon that is consistent with the proposed change process. The following quote is illustrative of the negotiation that occurs between SBU and SCMO leaders as they decide on a new structural design (step 5):

> "It boiled down to what we [i.e., SBU and SCMO leaders] could end up agreeing to integrate. The analogy that we've used 100 times is, it's like the old war movie "A Bridge Too Far." It was essentially about an engagement in World War II and they just got too greedy and they went longer than they should have, and then they had to back-track. And all we said was we wouldn't do that, we would basically go as far as we could get people to agree to go, recognizing that you might be able to do more in the future and that led to our scope [i.e., the desired SCMO functional scope]. You know the next two things that would have been on our [i.e., the SCMO's] list would have been to bring continuous improvement into the organization and to bring that shorter term planning, you know the getting closer into an S&OP kind of cycle and that short-term supply and demand balancing and replenishment planning. Those were the things that were on the fence and the larger organizations [i.e., SBUs] weren't comfortable with that…what we learned from the prior integration efforts and other supply chain integration efforts around the world, was that when you get closer to people's assets, it's like touching the third rail on the train line. I mean you could make a case that there is opportunity there but the degree of difficulty in getting the transaction done and people's emotions and the organizational independence…if you go too far you get nothing out of it."

The next step was to implement the negotiated structural design by communicating the plan to stakeholders outside of the SCMO (e.g., SBUs, customers). To ensure a smooth transition from the old structure to the new structure, SCMO and SBU leaders developed transition agreements. Such agreements included detailed implementation schedules and

service level agreements, as well as cross-organizational committees to monitor the impact of the transition on operations. This type of negotiation and debate depicted in strategic choice theory continued during the implementation phase of the SCMO change process (step 6):

> "In terms of keeping them [SBU GMs] happy, it was seen as a bit of a takeaway because we were going through lots of transitions and we'll continue to go through transitions. So when you talk about geographic ownership from a change standpoint, that's always difficult. So you're taking away, perceived to be taking away, a big chunk of my organization. So what does that kind of mean for me? So when we did that, we made sure that we had some good change processes in place to ensure, from a day to day stand point, those folks [which used to report to the SBU GMs] still support the geographies in the business units. So the GM's were able to see that and so we were able to get over that change hurdle because they still have someone at the leadership table at a GM level and that supply chain VP that they again partner with, challenge, ask questions of, that's right there on a day to day basis. From a service level stand point we certainly have high level service agreements that we deliver on, we have shared accountability in terms of our objectives and how we evaluate from a performance standpoint…so when we put those things in place, that gave the GM's a higher level of comfort."

One area where strategic choice theory and the proposed SCMO change process differ is how resistance and assimilation issues are addressed. Strategic choice theory focuses on the political process among the dominant coalition. Although institutional norms and firm culture are addressed in strategic choice theory, individual contributor actions are not extensively developed. A clear theme in the field interviews was that SCMO leaders firmly believe employee level resistance was a legitimate threat to the success of structural change. Step 6 identifies how SCMO leaders make proactive choices to overcome employee resistance to supply chain structural change by instilling new norms and behaviors that support new ways of performing and coordinating work. The following quote is illustrative regarding the reality of organizational member resistance to structural change:

> "I think unless you work for the military and you're in some command and control structure it's very hard to drive sustainable change from the top down because you ultimately deal with people. We've had a number of different sayings, but one of them is in a big organization like ours, you know there are 30 to 50,000 frontline people and that interface between frontline employee and a first level supervisor, most of those folks you know they've been around for a while. What we say is they could always choose to play for the B team and the B team is, 'I was here before you and I'll be here when you're gone mister big idea'. And if you can't show them why it's better for them to change and you can't show them that they have a role in architecting that change you're never going to drive large scale organizational change anyway. It's just, at least in my experience, I've not seen it be possible. I mean to me, that's the biggest riddle in my role is driving sustainable change. We've driven fast change but it will go away. So we're trying to say how do you really build capability so that you can change with some speed but actually make sure that it sticks…that's very, very, hard. Our capability in that area is very tenuous."

Overall, the SCMO structural change process steps and flow of activities are consistent with strategic choice theory as depicted by Child (1997). One particular area where strategic choice theory can be applied to SCMO structural change is in examining goal conflict among internal organizations (e.g., corporate and SBUs). As discussed earlier, supply chain activities have different operational characteristics and thus may need to be managed differently for the unique needs of each SBU. In these situations, supply chain decisions could be centralized, decentralized, or shared. Strategic choice theory focuses on the dominant collation's action through the lens of debate and negotiation. As such, strategic choice theory can provide conceptual guidance in examining governance issues, such as how are decision rights established, managed, and modified as business conditions change. In addition, strategic choice is appropriate to investigate an actor's external relationships, especially with regard to lobbying success-defining organizations.

4.2.4 Configurational Approach

The configurational approach recognizes that change often follows an incremental path, but also can include episodes of radical change. In other words, the organization's structural equilibrium is ended abruptly, or punctuated, by transformational periods. Such a change process is termed "punctuated equilibrium" (Tushman and Romanelli, 1985). The rationale for this phenomenon is that organizational inertia prevents continuous adjustments which are necessary to stay aligned with a changing environment. The delay of enacting needed changes results in the organization being severely mismatched with the environment, thus, requires a radical reorientation. In configurationalism, "numerous dimensions of environments, industries, technologies, strategies, structures, cultures, ideologies, groups, members, process, practices, beliefs, and outcomes have been said to cluster in to configurations, archetypes, or gestalts" (Meyer, Tsui, and Hinnings, 1993; p. 1175). Hypothetically, the number of configurations could be very large given the possible combinations of different dimensions. In practice, however, only a few configurations emerge as interdependencies between dimensions result in coherent patterns. For example, a configuration that contains a firm with a product differentiation strategy (Porter, 1980), will likely cluster with a culture of innovation and a dynamic environment versus a culture of standardization and a stable environment.

> Organization - Viewed as a segment or portion of a configuration consisting of formal and informal organizational dimensions.
>
> Environment - The environment is also part of the configuration is assumed to drive the need for configurational change. The environment is objectively perceived, unchangeable, deterministic, and is part of the configuration itself.

Actors - Key actors are assumed to be top managers or a dominant coalition who have the ability to think strategically, as well as rationally plan and implement required changes. Managers willfully choose to change the organization with purposeful action. However, their choice is constrained in that they are only able to react to objective environmental pressures that will cause misalignment.

Change Process - The general model for change entails a process of convergence and reorientation (Demers, 2007). Change is top-down directed and consists of two distinct phases - momentum and revolution (Tushman and Romanelli, 1985). The momentum phase is a relatively long period of time where organizations change very slowly. During this phase, middle management rationalize structure and systems to increase alignment with the existing strategic direction. Conversely, the revolution phase is characterized by large scale organizational reorientation and is considered a rare event which has a relatively short duration. In effect, this change destroys the old configuration and order emerges from the new configuration by its constituent parts interacting as a whole (Tushman and Romanelli, 1985). The newly configured organization seeks to achieve a new strategic direction. An organization's "track" is the movement (or lack thereof) from one configuration to another over time (Greenwood and Hinings, 1988).

Theory Assessment

One criticism of configurational theory is that the change model (i.e., punctuated equilibrium) is possibly biased towards large, established manufacturing firms versus other types of firms, such as smaller innovative firms which go through continuous morphing or configuration changes (Mintzberg, Ahlstrand, and Lampel, 1998). This criticism is not seen as a limitation for this study since we focused on global firms which share these same attributes. This study primarily assesses the work of Greenwood and Hinings (1988) as these authors explicitly address the process of change. Further, Greenwood and Hinings (1988) propose several change models in which punctuated equilibrium is only one of many possible alternatives.

According to Greenwood and Hinings (1988), there are two primary aspects of a configuration (or archetype). First, the "interpretive scheme" is the collective set of strategic ideas, values, and beliefs held by its organizational members that guide the prevailing thought regarding the strategic direction a firm should pursue. The other constituent part of an archetype is the structures and processes that enact and support the interpretive scheme. Coherence is said to exist when the structures and processes consistently reflect the interpretive scheme in an understandable and stable way (Meyer, et al., 1993).

Greenwood and Hinings (1988) view organizational change as a firm moving through a series of states. Different change states are characterized by the degree of coherence between the firm's interpretive scheme and organizational design (structure and processes). There are three basic change states: archetype coherence, embryonic archetype coherence, and schizoid incoherence. The first state occurs when a firm's organizational design consistently reflects the interpretive scheme. The second state is embryonic archetype coherence and occurs when the current interpretive scheme loses legitimacy and an alternative interpretive scheme emerges within the firm. This state can exist during de-coupling from an existing interpretive scheme and during re-coupling to a new interpretive scheme. Interpretive de-coupling happens when a firm initiates change from one strategic direction to another (i.e., the interpretive scheme starts to change and de-couples from the current structures and processes). One SCMO manager described how his firm's emerging strategic direction was negotiated between the SBUs and the SCMO and finally gained acceptance (i.e., where the strategic direction "de-coupled" from the current structural design):

> "There was some resistance…we did have some pockets of people that said you know I don't really understand what the benefit is going to be. So, we had some open discussions and in some cases we did need to elevate to the regional VP and said okay this is what I see, this is what he or she sees and what do you think?...So, I don't think today there is resistance through the organization."

Re-coupling occurs when the new interpretive scheme gains acceptance and the organizational design transforms and begins to gain coherence with the new interpretive scheme. Another SCMO leader explained how his firm started to re-couple and gain coherence as their structure and processes were developed to fit their firm's new interpretive scheme.

> "Because this is a new organization we're still setting some of that up, but we basically set up a council where we bring people together from different parts of the business to join the meetings…And we set up a bunch of teams and we're still in the process of having some integration teams from the new organization working through some of that to bring people together and to try to deal with the common culture, common metrics, common goals, common strategies and vision that we're trying to put together."

The third change state postulated by Greenwood and Hinings (1988) is called schizoid incoherence. This state occurs when the "structure and processes reflect the tension between two contradictory sets of ideas and values. In this position, organizations show the presence of both interpretive schemes and elements of both organizational forms" (Greenwood and Hinings, 1988; p. 304).

Again, organizational change is characterized by movement and the absence of movement between archetypes. Greenwood and Hinings (1988) hypothesize several different trajectories firms generally follow based upon the combination of change states the firm passes through. Typical tracks include inertia (no change), aborted excursions (unsuccessful change and reversion to the original archetype), re-orientation (successful change), and unresolved

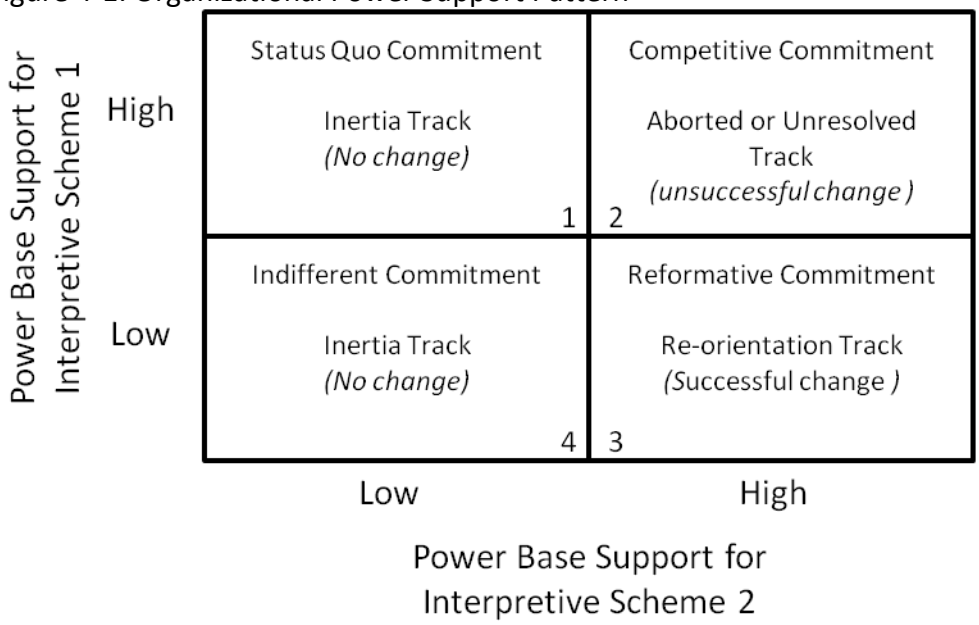
excursions (failure to obtain coherence due to incomplete de-coupling and/or incomplete re-coupling) (Greenwood and Hinings, 1988).

Greenwood and Hinings (1988) suggest that archetypes are either replaced or maintained based on three dynamics: the fit between environment and firm processes and structures, power-dependence relationships, and the pattern of commitment by members within the firm. Greenwood and Hinings (1988) support these hypotheses by combining multiple organizational change perspectives, including contingency theory, resource dependence theory, and institutional theory. The fit dynamic between environment and organizational structure follows contingency theory. Greenwood and Hinings (1988) do not offer predictions on which change track firms are likely to take based on the fit dynamic.

The second change-stability dynamic examines the distribution or pattern of support for alternative interpretive schemes among the firm's power bases. In this regard, structures and processes are viewed as means to acquire and use power (Pfeffer and Salancik, 1978). As such, "structural change is affected by the extent to which groups are dissatisfied with the accommodation of their interests" (Greenwood and Hinings, 1988; p. 312) through the current organizational design. Figure 4-1 summarizes Greenwood and Hinings' (1988) predictions regarding which change track firms are likely to take based on the level of support for competing interpretive scheme alternatives. Assume there are two interpretive schemes under consideration, where scheme 1 is associated with the firm's existing archetype and scheme 2 is the alternative. Cell 1 depicts the situation where the dominant coalition is relatively united

and supports the existing interpretive scheme. In this context, organizational politics are believed to thwart the alternative scheme and, thus, the inertia change track is pursued and the current configuration maintained.

Figure 4-1: Organizational Power Support Pattern



Cell 2 represents the situation where there is high support for both interpretive schemes. However, power bases align with the interpretive scheme that best serves their interests, resulting in widespread support for both alternatives. Greenwood and Hinings (1988) suggest that firms commonly replace leadership if they are not loyal to the alternative scheme. Even after leadership changes are made, in some instances key power bases remain that support the existing configuration. In this situation, support for the competing alternatives is dispersed between power bases and an aborted or unresolved change track is predicted. Field interviews support to the view that leadership changes are made to facilitate structural change.

Further, one firm in our interviews followed the aborted change track when support for the new interpretive scheme could not be obtained, even after leaders were replaced:

> "Yeah there were some changes in different places in leadership and a lot of times that brings in other philosophies and ways to do it, different approaches, and there was push back from the businesses because some people were buying into some things and some weren't…so really there was an effort that was made, I mean the direction that it was heading in was to centralize activities and get away from the de-centralized model. That was just the mindset that was being used and it's a mindset that a lot of companies use and are very successful with. They just ran into a lot of headwind because it just wasn't enforced that same way from the top management. So I think there was some frustration, I think there were some successes and I think there are some things that probably didn't yield the benefit that people hoped they would because it just wasn't fully implemented."

In cell 3, the dominant coalition supports an alternative interpretive scheme. In this case, firms are expected to take a re-orientation change track towards a successful change to a new configuration. All the firms we interviewed are pursuing global strategies. As such, most of them made the strategic transition from regionalized operations to more integrated operations. In some instances the leadership teams were relatively unified, as one SCMO leader described:

> "We are a single global, functional organization. So if we had this conversation 3 years ago, we would be having a different discussion. We would be talking about each region functioning independently and so forth but we've [i.e., corporate, SBU, and SCMO leaders] made the decision to globalize this business and in doing so the practices are standard across the entire enterprise. We don't replicate any of those teams across the footprint."

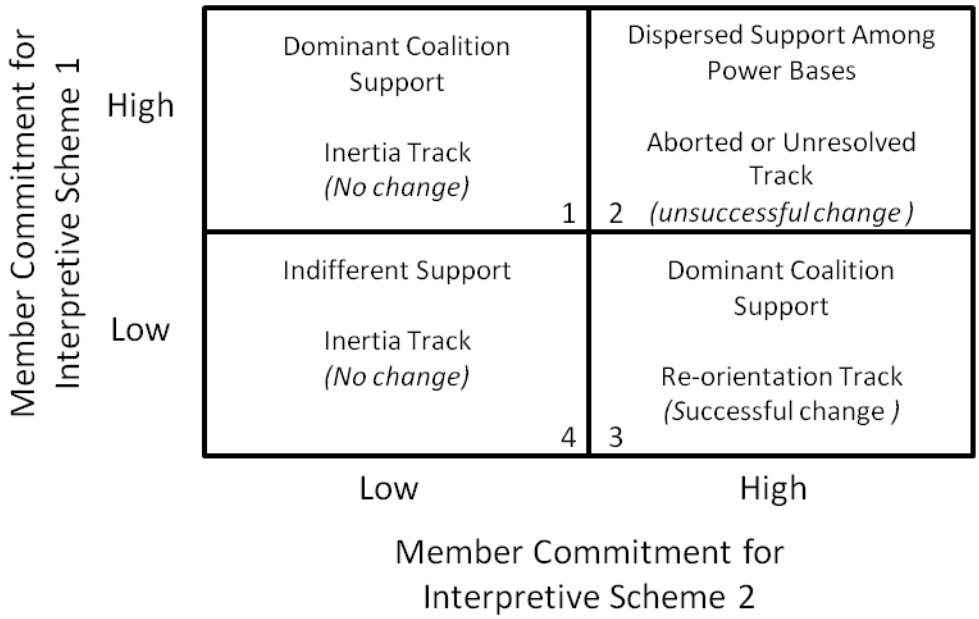
Greenwood and Hinings (1988) do not discuss the situation when support for the existing interpretive scheme and the alternative scheme is low (i.e., cell 4). We included it in this research in order to be conceptually complete as there may be periods of time where there

is not prevailing support for any scheme envisioned by the firm. These instances may occur when the dominant coalition recognizes that (1) the firm is misaligned with the environment and (2) there is no support for the existing scheme. Further, the firm may be in the process of developing viable alternatives, but none are mature enough to gain widespread support. As such, we expect the inertia track to be followed in this situation, at least in the short-run.

The third change-stability dynamic described by Greenwood and Hinings (1988) is the pattern of commitments by members of the organization. This dynamic acts in a similar fashion to the power-dependence, change-stability dynamic, except change track predictions are based upon organizational member commitment versus the support from the firm's leadership (i.e., formal power). Figure 4-2 presents the four idealized patterns of commitment and predicted change track for each pattern. The rationale for each cell's change track prediction is consistent with that described above for Figure 4-1. One implication is that even if the dominant coalition is unified towards a new interpretive scheme, the transition to a new archetype is also impacted by the commitment (or lack thereof) among organizational members. One SCMO leader discussed this dynamic during our interviews and the example resulted in a failed or unresolved change track (cell 2).

> "When a new CEO comes in and tries to do it and the organization rejects them, as the culture of that organization and how they adapt, and when they don't. If you can't adapt, if you don't have these cultural sensitivities, you just simply fail and a lot of times you're failing and you don't even know it until 3 years later, [until] it's now evident."

Figure 4-2: Organizational Member Commitment Pattern



Conversely, many firms explained how leaders agreed on an alternative interpretive scheme and were able to change the firm culture and gain commitment from organizational members. One SCMO manager explains how his firm made a successful re-orientation (cell3):

> "What I've seen as far as things that have changed in the organization is when the culture changes, when top management says, 'we're not going to be two [companies], we're going to be one [company]. We're going to have international and domestic serviced the same way. International sale is just as important as a domestic sale'. So that's when the organization changed."

Configuration theory differs with the SCMO change process in two ways. First, in configuration theory, managers objectively perceive environmental pressures. Specifically, the assumption is that attributes of the environment exist independent of the observer and these attributes can be known without bias. In the SCMO change process, managers subjectively perceived environmental pressures. For example, it was possible for two different managers within the same competitive environment to perceive the nature of the environment in

different ways. The second area where the SCMO change process differs is that the development of a new capability is central to the structural change process. In general, the SCMO change process pertains to the following activities: sensing if a new capability is needed, designing and implementing an organizational structure that helps enable the new capability, and measuring outcomes to assess the effectiveness of the new capability. As such, developing new organizational capabilities are the main focus of the SCMO structural change process. In configuration theory, the change-stability dynamics and the resulting configuration trajectory are the focal elements in the structural change process.

In summary, the intent of configuration theory is to address the complete strategic re-orientation of firms (e.g., from a differentiation strategy to a cost leader strategy). However, the theory provides insight for SCMO incremental structural change as well. From a practical sense, configuration theory identifies major threats to implementing structural change and describes their origin and nature. Further, the theory predicts change tracks that result in success or failure depending on how firms negotiate the change-stability dynamics, paying particular attention to transition periods. Finally, configuration theory also suggests that global firms pursuing related diversification strategies may be susceptible to schizoid incoherence. Specifically, dispersed support is likely to materialize between SBU leaders' pursuing unique business goals and SCMO leaders' pursuing consistency and efficiency among all the firms' SBUs.

4.2.5 Genealogical Theory

Organizations are viewed as vehicles where bundles of competencies or routines are embedded. The unit of analysis is the routines themselves, not the organization as a whole. Organizations are compared to biological organisms that have self-replicating systems (Demers, 2007). The basic unit involved in replication is the "gene", which must be reproduced if the organization is to survive. The gene is typically conceptualized as competencies or routines, but has also been represented as cultural thought (Weeks and Galunic, 2003), as well as strategic initiatives, human capital, and social capital (Lovas and Ghoshal, 2000). Aldrich (1999; p. 36) describes operational and administrative routines as "held by their members and embedded in their technologies, material artifacts, and other structures." Based on their performance, routines are "selected" through the survival and reproduction of the organizations that carry them.

Reproduction of routines can take several forms, including when they are transplanted (i.e., exploitation) in new areas during stages of internal growth, mergers and acquisitions. Just as in biological organisms, "variations" or "mutations" can occur during reproduction. Variations can be unintentional (e.g., as a result of poor quality) or intentional (i.e., as a result of innovations). Search routines (i.e., exploration) can cause existing routines to be modified, resulting in new innovations. Nelson and Winter (1982) define the process of replicating innovations as a cumulative learning process, which facilitate organizational dynamic

capabilities. Finally, "retention" or persistence of routines is the result of reproduction processes.

> Organizations - Viewed as an entity or a vehicle where bundles of competencies or routines are embedded.
>
> Environment - Is represented as an economic competitive arena. The environment weeds out or "selects" which capabilities or routines survive based on their performance. Selections are indeterminate, environmental features are objective, and power structures are not theorized.
>
> Actors - Any organizational member that is involved in the variation-selection-retention change cycle. Some theorists posit the success of innovations is mostly outside the control of top management, whereas dynamic capability theorists emphasize top management involvement. Human agency is not emphasized.
>
> Change Process - Organizational change is the result of the variation, selection, and retention process.

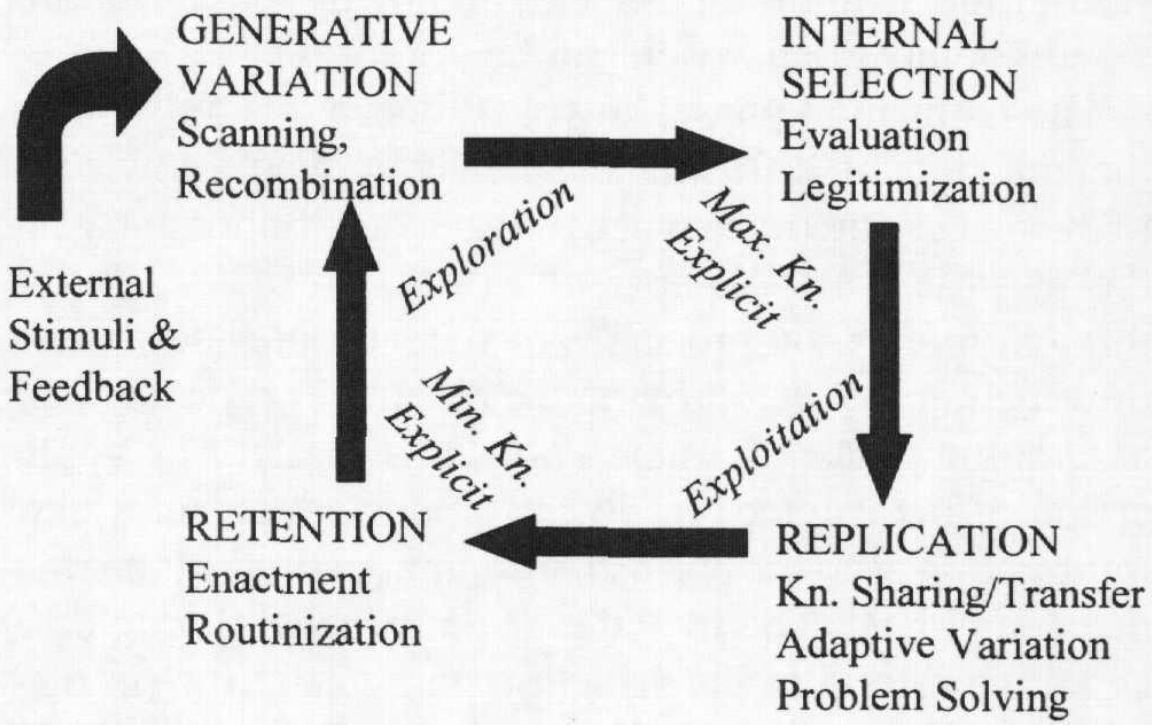
Theory Assessment

Two recent works present detailed genealogical change process frameworks. The first is Lovas and Ghoshal (2000), who posit a model that use strategic initiatives, human capital, and social capital as the units of selection. The firm's strategic initiatives, human capital, and social capital replicate through individuals interacting in the environment. However, the assumptions in Lovas and Ghoshal's (2000) model limit its application to situations where operations are tightly integrated in the organization, such as firms pursuing related diversification. The authors point out this limitation and recommend that their model be applied only to situations that are "best addressed by decentralized, compartmentalized, semi-autonomous units such as the work groups responsible for strategic initiatives"

The second framework by Zollo and Winter (2002) describes the nature of dynamic capabilities and operating routines and how they evolve over time. Zollo and Winter (2002; p. 341) conceptualize operating routines as involving "the execution of known procedures for the purpose of generating current revenue and profit" and dynamic capabilities as seeking "to bring about desirable changes in the existing set of operating…routines for the purpose of enhancing profit in the future." Dynamic capabilities are depicted as systematic methods that change operating routines including process innovation, restructuring, re-engineering, and post acquisition integration (Zollo and Winter, 2002). Dynamic capabilities arise from learning mechanisms such as experience accumulation, knowledge articulation, and knowledge codification (Zollo and Winter, 2002).

Figure 4-3 depicts Zollo and Winter's (2002) genealogical change process framework. In the generative variation phase, individuals or groups combine both external stimuli and internal information to generate a new set of ideas. This phase involves activities such as scanning, developing new organizational capabilities, and designing supporting structures. These activities are consistent with the content in steps 1 through 4 of the proposed SCMO structural change process.

Figure 4-3: Activities in the Knowledge Evolution Cycle (Zollo and Winter, 2002).



The next phase in this evolution cycle is where new variations are subjected to internal selection processes, such as power structures and legitimization processes. This phase is where the new initiative is evaluated and debated among stakeholders within the firm. The initiative is competitively selected or rejected based on its expected performance relative to the existing operating routine. This phase mirrors step 5 in the proposed process where SCMO stakeholders evaluated new initiatives relative to their respective business and functional goals and decided on new structural design.

The replication phase describes how the new initiative is adopted throughout the organization by means of the diffusion process (Zollo and Winter, 2002). During this phase, adaptive variations occur as the initiative is applied to a wider variety of local conditions.

Adaptive variations can be intentional, such as tailoring initiatives to the local environment. However, unintentional variations are also likely as more people are involved in the knowledge sharing process and this leads to variance in regards to how the new routine (intent and procedure) is explained. The replication phase of the model is analogous to the implementation phase (step 6) of the proposed process. However, there is notable difference between the processes. Although implementation variance is addressed in step 6 of the proposed process, the operative mechanism is different. Zollo and Winter (2002) suggest behavioral mechanisms operate during exploitation activities (replication and retention phases) giving rise to inconsistent diffusion and absorption, which can lead to undesired variation. In the SCMO change model, step 6 identifies how employee resistance to structural change can cause the implementation to fail or vary from location to location. We believe that variation due to inconsistent diffusion and absorption, as Zollo and Winter (2002) suggest, is credible; however, field interviews did not provide positive indications of such a mechanism from the firms interviewed.

Finally, Zollo and Winter (2002) propose that the external environment plays two important roles. First, it "provides the feedback on the value and viability of the organization's current behaviors" (Zollo and Winter, 2002; p. 344). In this regard, the external environment functions as a typical selection mechanism in evolutionary theory. The second role the environment plays is as a source of stimuli for generative variation to potentially improve existing routines.

Genealogical theory differs with the SCMO change process in two ways. First, in genealogical theory, environmental pressures act on organizations in a unidirectional manner. Specifically, organizations are not able act on the environment to change how environmental pressures affect the organization. In the SCMO change process, a bi-directional relationship exists between the SCMO and the environment. Second, although genealogical theory does specifically address organizational members, the theory does not indicate that managers proactively address organizational member resistance and assimilations issues.

Overall, the SCMO structural change process steps and flow of activities are consistent with genealogical theory as depicted by Zollo and Winter (2002). Additionally, developing new capabilities is the central theme in both processes. As such, genealogical theory is an appropriate lens to examine the mechanisms involved with building new SCMO capabilities. Zollo and Winter's (2002) discussion of adaptive variation of newly developed routines can inform research on process innovation and structural implementation. This work is especially relevant for issues when new routines are implemented in different locations across the firm, particularly with regard to local differentiation needs and quality assurance matters.

4.2.6 Complex Adaptive Systems

The preceding approaches viewed organizations as self-stabilizing entities. In other words, organizations stabilized or reached a state of equilibrium after transitory periods of change. In complex adaptive systems, interactions among intelligent agents create self-organizing networks that govern organizational stability. The complexity approach treats

organizations as nonlinear dynamic systems whose behavior is probabilistic and generally unstable (Stacey, 1995). It is because of instability that organizations are able to change and adapt. For example, a perfectly stable system cannot change. Non-linear systems evolve through varying states of stability - stable equilibrium, "edge-of-chaos behavior (self-organized critically), deterministic chaos (bounded instability) or random noise (explosive instability)" (Demers, 2007; p. 155).

Complex adaptive system (CAS) theory is concerned with probabilistic systems that are self-organizing. Self-organizing systems are "characterized by a large number of interacting adaptive agents following relatively simple rules whose collective behavior spontaneously evolves toward a complex structure" (Morel and Ramanujam, 1999; p. 280). Agent behavior drives the level of connectedness among agents which, in turn, drives the degree to which organizations are able to adapt to changing conditions. At a certain level of connectedness the system exhibits edge-of-chaos behavior (described shortly) where organizations can become more innovative, enabling greater adaptability and competitiveness (Brown and Eisenhardt, 1997; Stacey, 1995). Brown and Eisenhardt (1997) suggest that the most effective firms exhibit edge-of-chaos behavior where there is a balance between the opposing forces of stability and change. Stability in a firm is fostered by executing day-to-day operational routines (exploitation) and by formal networks mechanisms that are intended to control these activities. Conversely, change is promoted by innovation (exploration) and informal networks.

Organizations - Are viewed as a collection agents interacting with one another and their environment. Agents are nested within systems, which can be nested in higher-order systems.

Environment - The environment is objective and co-evolves with the organizational system.

Actors - Are compliant agents whose behavior and actions are governed by a programmed set of rules. Their behavior rules can change over time and agents are allowed to enter and exit the system. Agents link together with other agents to form connections. The density of connections among agents drives the degree of system stability. Specifically, a low degree of connectedness is associated with stability and a high degree of connectedness is associated with disintegration or complete randomness. In a certain section of this continuum, there is a range where the level of connectedness among agents "can display self-organizing behavior before becoming chaotic" (Morel and Ramanujam, 1999; p. 283). This stage is termed edge-of-chaos behavior and is characterized by organizations being in a state of continuous change. Top management may or may not direct change as it can spontaneously arise as a result of normal agent interaction (Anderson, 1999). However, managers can influence change by defining rule sets. As a consequence, no single entity controls the change process completely.

Change Process - The degree of interaction among agents with programmed rule sets drives the degree of organizational stability and thus, an organization's ability to adapt.

Theory Assessment

In the previous theory assessment sections we were able to directly compare the SCMO structural change process to the change processes of the respective theories. Although CAS meets the two selection criteria used to identify theories to evaluate for this study, CAS does not follow a structured change process. Therefore, directly comparing activities and processes related to structural change with CAS is not meaningful. As such, we compare several principles of CAS that are consistent with the field interviews. The first principle of CAS theory we examine is agent exploration. In CAS theory, agents interact with other internal and external

agents to gather information. As agents gain new information through interaction, their rule sets are affected which precipitates behavior changes. This exploration behavior is consistent with steps 1 and 2 of the proposed SCMO structural change process. In these steps SCMO managers interact with informal and formal contacts to gather environmental information and emerging changes within the firm. Further, information gathered during these activities precipitated SCMO structural change.

The principle of agent interaction was also observed when individual contributors (agents) possessing innate institutionalized norms and firm culture (rule sets) resisted structural change during the implementation phase (step 6). The effect that individual agents interacting via informal networks had on the success or failure of a structural change initiative was clearly identified by SCMO leaders. Step 6 in the SCMO structural change process identifies how SCMO leaders take a proactive role to overcome employee resistance to structural change by instilling new rule sets (e.g., norms and behaviors) that support new ways of performing and coordinating work (i.e., interaction).

Another fundamental principle of CAS theory is that local agent behavior can generate global characteristics of the system (Anderson, 1999). We observed this phenomenon when best-practices were identified and applied to other areas of the firm via steps 2 through 8 of the proposed SCMO change process. The effectiveness of new local behavior (variation) was recognized by leadership (selected) and applied across the SCMO (retention). In this sense, local behavior affected the global characteristics of the SCMO.

According to CAS theory, managers can only indirectly influence organizational outcomes by manipulating the context in which agents operate (Demers, 2007). Managers can strategically choose the environment in which the firm competes (Brown and Eisenhardt, 1997) or adjust the agent's rule sets such as their goals, incentives, and social cues (Anderson, 1999). Another means to guide organizational outcomes is to alter the organizational structure within which agents operate, thus changing interaction patterns (Anderson, 1999).

Our field interviews echoed that managers use all the mechanisms above to drive organizational outcomes. In addition, Brown and Eisenhardt (1997) suggest that strategy making should be a democratic, bottoms-up process that is self organizing and emergent. Further, managers should shape the context within which a strategy emerges rather than trying to directly shape the pattern of activity that constitutes strategy. One SCMO leader provided support for Brown and Eisenhardt's (1997) hypothesis:

> "I have my own perception or instinct on what is important and where the handles are that makes us better than our competitors, but basically it's not important. In a way important is only what gets created by the organization because that's the way to implement the strategy that actually the organization creates the strategy, that's the only way to implement the strategy…[however,] I'm steering it, I want to make sure that certain aspects are dealt with and if the outcome is really going into a big conflict on what my perceptions are then definitely we need to look at those more carefully."

However, CAS theory suggests that organizational outcomes are unplanned patterns that emerge from interactions among agents. In other words, when a new self-organizing order emerges from the interacting agents, the outcome is indeterminate and may be a complete surprise to the manager (Anderson, 1999). Managers revealed that structural change initiatives

were rarely implemented perfectly. In fact, managers explained that they had experienced marginal or failed outcomes, in addition to positive and negative unintended consequences. However, none of the respondents described an outcome of a structural change initiative as a something fundamentally different than what was planned. As an illustrative example, say a SCMO manager created a new customer integration group to develop a single point of contact for customers across the firm's product lines and geographies. After implementing the new positions and coordination structures, instead of achieving some form of a lateral integration capability, the emerged outcome was something completely unrelated, such as a product postponement capability. Although this scenario is plausible under CAS theory, we did not observe this type of structural change behavior in our interviews with SCMO managers.

CAS provides a unique view to assess SCMO structural issues. One application is to examine how specific structural decisions affect interaction patterns between agents, as well as organizational outcomes. In addition, CAS could be used to investigate how different goals and incentives affect agent behavior. Specifically, agents' actions are governed by a programmed set of rules and their behavior rules can change over time as agents interact. By varying agent incentives, researchers could observe emergent structures with SCMO agents pursuing functional goals and SBU agents pursuing business goals.

4.2.7 Conclusions

This section summarizes the findings from the theory comparison portion of this research and is organized in the following manner. First, empirically derived theoretical

assumptions for the SCMO structural change process are presented. Specifically, assumptions in the four key areas assessed in this research: the organization, its environment, its actors, and its change process. Next, a summary of the similarities, distinctions, and theoretical applications for the theories assessed in this Chapter is presented. Finally, this research's contribution to the third research gap identified in the literature review (Chapter 2) is discussed.

The following theoretical assumptions were derived from field interviews with senior SCMO managers regarding the SCMO structural change process:

> Organization - Both formal and informal organizational attributes play important roles within the organization. Structural change dynamics are influenced by hierarchy, unit groupings, centralization, processes, as well as power, politics, and institutional context of the firm. Organizations are not autonomous and are constrained by interdependencies with other organizations.
>
> Environment - The environment is subjectively perceived and interpreted by managers at all hierarchical levels. The environment is not completely deterministic and can be changed, implying a bi-directional relationship.
>
> Actors - Key actors are assumed to be top managers who have the ability to think strategically, as well as rationally plan and implement required changes. Manager's rationality is bounded and they willfully choose to change the organization with purposeful action. However, their choices are partially constrained by organizational and environmental factors. Non-managerial organizational members also play an important role in structural change. Organizational members' commitment or resistance to change influences the how change initiatives are implemented, as well as the outcome of the change initiative. Managers have partiality conflicting goals with other managers and organizational members. The social model of behavior is important as managers work out goal conflict through an indeterminate political process.
>
> Change Process - Managers at all levels in the firm sense external environmental change drivers. SCMO managers sense internal environmental change drivers

and assess if there is requirement for a new SCMO capability. If a new capability is needed, SCMO managers assess if the current structural design supports the new capability requirements. If not, SCMO managers develop alternative structural designs. SCMO and SBU managers jointly decide and implement the new structural design. SCMO managers proactively address organizational member resistance issues and attempt to assimilate members into the new organizational structure. Performance outcomes are measured and the structure is adapted as required.

Sections 4.2.1 through 4.2.6 assessed six existing change theories selected in this research with the SCMO change process. A summary of this evaluation is contained in Table 4-2, including similarities, distinctions, and SCMO applications.

Table 4-2: Comparison of SCMO Structural Change Process to Six Organizational Change Theories

	Similarities	*Distinctions*	*SCMO Theory Application*
Contingency	• Importance of matching structural design to specific contingencies	• Managers subjectively perceive environment • Social and institutional context play an important role in shaping structural change • Initial structural implementation may not be complete, thus requiring further adaption	• Guiding decisions regarding what kind of structural design is appropriate for different types of contingencies
Resource Dependence	• Managers subjectively perceive environment • Social and institutional context play an important role in shaping structural change • Managers' choices are constrained by the power position of external organizations • Bi-directional relationship between the SCMO and the environment	• Managers' actions can have a significant effect on structural change	• Shaping environmental pressures through buyer-supplier relationships, lobbying success-defining organizations, and negotiating with internal organizations • Understanding the of role organizational member resistance during structural change

Table 4-2 (cont'd)

	Similarities	*Distinctions*	*SCMO Theory Application*
Strategic Choice	• Managers subjectively perceive environment • Social and institutional context play an important role in shaping structural change • Managers' choices are partially constrained by the environment as managers' choices can affect success-defining bodies • Assumption of goal conflict among dominant coalition that is worked out through a political negotiation process	• Managers proactively address organizational member resistance and assimilation issues	• Negotiating conflicting goals with corporate and SBU organizations • Lobbying success-defining organizations
Configuration	• Overcoming both stakeholder and organizational member resistance is central to successful structural change • Assumption of goal conflict among dominant coalition that is worked out through a political negotiation process • Social and institutional context play an important role in shaping structural change	• Managers subjectively perceive environment • New capability development is central to the structural change process	• Implementing structural changes • Negotiating conflicting goals with corporate and SBU organizations • Understanding incoherence risks during transition periods between old and new structures • Describing structural change successes and failures
Genealogical	• Managers subjectively perceive environment • New capability development is central to the structural change process	• Bi-directional relationship between the SCMO and the environment • Managers proactively address organizational member resistance and assimilation issues	• Understanding the mechanisms involved with building new capabilities • Identifying spatial/geographical implementation risks for new routines

Table 4-2 (cont'd)

	Similarities	*Distinctions*	*SCMO Theory Application*
Complex Adaptive Systems	• Managers control the context in which agents operate to promote desired organizational outcomes • Agent interactions are important for environmental sensing and organizational member resistance	• Process of change is structured at the macro level • New capability development is central to the structural change process	• Understanding how structure decisions affect agent interaction and organizational outcomes • Understanding how goals and incentives affect structure

Gap #3: Compare Results with Existing Theory

In Part 2 of this study, we compare the emerged SCMO change process with extant change theories. The results of this effort contribute in three ways to the body research associated with structural change in supply chain related organizations. First, the similarities identified in Table 4-2 provide initial theoretical grounding for the proposed SCMO structural change process. The SCMO change process shares key elements with all of the change theories. In fact, the overall process flow and major activities developed in the SCMO change process closely follow those contained in strategic choice and genealogical theories. In addition, configuration theory concepts are also highly consistent with the SCMO change process. However, the focus of configuration theory is on strategic change rather than other types of structural change. As such, the purview of configuration theory is at a higher level and does not contain operational details (e.g., capability identification and development process). Resource dependency, contingency, and CAS theories do not espouse specific change processes. As such, a direct process flow comparison is not feasible. However, the major tenants of resource dependency theory are applicable to the SCMO change process and are also used liberally in strategic choice, genealogical, and configuration theories

Second, the theory assessment in Table 4-2 highlights areas where existing theories can be extended. For example, strategic choice theory has not been developed in-depth in the area of organizational member resistance towards structural change, although it does address the dominant coalition's resistance. As such, one theory extension could be to describe the

manager's choice to proactively address organizational member resistance and assimilation issues through the means discussed in this research. Likewise, genealogical theory addresses the dominant coalition's resistance, but does not robustly account for organization member resistance. Another area that could be extended in genealogical theory is including a bi-directional relationship between the organization and the environment. Finally, configuration theory addresses both management and organization member resistance, but does not focus on the new capability development process and could be extended in this domain.

Third, Table 4-2 identifies which change theories provide a detailed perspective of specific SCMO structural change issues. This information will help focus researchers on appropriate theories to investigate specific types of change phenomena. From a practical perspective, the applications provided in Table 4-2 present important aspects of structural change for SCMO managers regarding organizational members, the environment, the change process, and the organization itself. For example, this research provides strategies to address resistance to change from both stakeholders, as well as the organizational members. From the environment perspective, this study communicates the role of reducing environmental uncertainty through actively managing relationships with suppliers and success-defining bodies. Key change process suggestions include activities related to building and implementing new capabilities. Finally, applications aimed towards the SCMO as an organization include using contingency theory to guide decisions regarding appropriate structural design options for different types of contingencies. In addition, configuration theory offers insight into understanding the symptoms and consequences of having incoherence between the

organization's interpretive scheme and its systems and processes during structural change transition. Therefore, different theories explain different portions of the SCMO change process more in more detail than others. Table 4-3 summarizes this study's third contribution within the context of the SCMO structural change process steps.

Table 4-3: Theories which Significantly Inform SCMO Structural Change Process Steps

SCMO Structural Change Process Steps	Theories which Significantly Inform SCMO Change Process Steps
1. Sense External Environmental Change Drivers	• Resource dependency theory • Strategic choice theory • Genealogical theory • Complex adaptive system theory
2. Sense Internal Environmental Change Drivers	• Resource dependency theory • Strategic choice theory • Genealogical theory • Complex adaptive system theory
3. Assess Requirement for New SCMO Capability	• Genealogical theory
4. Assess SCMO Structural Design Requirements	• Contingency theory • Genealogical theory
5. Decide on Structural Design	• Strategic choice theory • Configurational theory
6. Implement Structural Design	• Resource dependency theory • Configurational theory
7. Measure Desired Outcome	• Strategic choice theory
8. Adapt as Required	• Strategic choice theory • Genealogical theory

CHAPTER 5
FUTURE RESEARCH

This chapter presents two areas of future research that were motivated by this research. The first area provides a provisional model linking SCMO structural change flexibility to performance. The model proposes three dimensions of structural change flexibility that emerged from the interviews, which are consistent with the supply chain related literature. In the second future research area, we present a provisional model linking SCMO strategic integration mechanisms to performance. We focus on a common situation that exists in many global firms, where strategic conflict is likely to exist between corporate, strategic business unit (SBU), and functional organizations. The source of strategic conflict results from certain combinations of corporate diversification strategies and SBU competitive strategies. Our provisional model provides insights to these strategic integration issues relating to centralization, internal supply chain governance structures, and performance.

5.1 SCMO Structural Change Flexibility

The main theme that surfaced from the field interviews was how vital it was for organizations to keep pace with the continuously changing business. Managers emphatically conveyed the significance of being "change ready" with regard to adjusting their SCMO structure to match the shifting environment. SCMO executives claimed that having this flexibility allowed the SCMO to respond to a wider range of changes in products, processes, and competitive environments in a faster and/or less costly manner than competitors. We term

what the managers called “change ready” as SCMO Structural Change Flexibility. Various types of organizational flexibility have been identified in the literature (e.g., Upton, 1994; Vokurka and O’Leary-Kelly, 2000; and Watts et al., 1993). Flexibility is often a response to uncertainty and is valuable to a firm (Conner and Prahalad, 1996). Scherpereel (2008, p. 461) suggests that “firms are envisioned as the embodiment of flexibility in terms of the which, where, when, and how to organize production and exchange.” Flexibility has been said to enable firms to respond more readily to changing markets and technologies (Sanchez and Mahoney, 1996). These conceptions of organization flexibility are consistent with what managers described. However, this emerged construct is distinct in that it specifically addresses structural change flexibility within the SCMO. As such, we provide the following definition:

> *SCMO Structural Change Flexibility: The ability of a firm to quickly change its SCMO structure with little relative cost penalty to support a wide range of new organizational capabilities required to meet operational and strategic purposes of the firm and its SBUs.*

Respondents discussed *SCMO Structural Change Flexibility* as allowing the SCMO to respond to changes in a faster and/or less costly manner than its competitors (i.e., a performance outcome). In addition, the relationship between flexibility and performance has been empirically demonstrated in many capability-performance studies (e.g., Hallgren and Olhager, 2009; Stevenson and Spring, 2009; and Swink, Narasimhan, and Kim, 2005). As such, we expect *SCMO Structural Change Flexibility* to be positively related to performance. When participants discussed SCMO change flexibility, we noticed common themes emerging.

Specifically, three main attributes appeared to be related to the development of SCMO structural change flexibility. These include organizational capability building knowledge, stakeholder consensus building expertise, and organizational assimilation expertise. The following paragraphs discuss each in turn and then provide proposed definitions for these constructs.

Organizational Capability Building Knowledge represents the range-heterogeneity dimension of flexibility (Upton, 1994; Koste and Malhotra, 1999). This construct captures the relative range of SCMO structural change options that are available to firms due to differences in knowledge regarding substantive supply chain work types, enabling technologies, and organizational design principles. *Stakeholder Consensus Building Expertise* and *Organizational Assimilation Expertise* represent the mobility dimension of flexibility (Upton, 1994; Koste and Malhotra, 1999). Koste and Malhotra (1999; p. 78) suggest that "mobility represents the ease with which the organization moves from one state to another." Further, the penalties relating to these two constructs are not related to *Organizational Capability Building Knowledge.* These two concepts only relate to overcoming resistance to structural change (i.e., movement) and are only incurred when a SCMO structural change occurs. The following are proposed definitions for the above SCMO structural change flexibility antecedents:

> *Organizational Capability Building Knowledge*: The degree to which the SCMO possesses an understanding of major supply chain work types, enabling technologies, and organizational design principles.

Stakeholder Consensus Building Expertise: The degree to which SCMO leaders are able to overcome resistance to structural change by negotiating competing objectives among stakeholders.

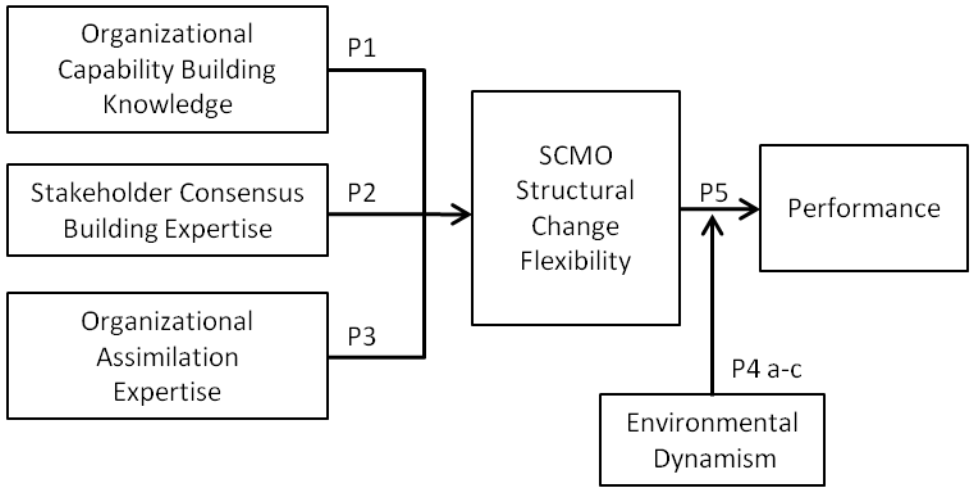
Organizational Assimilation Expertise: The degree to which SCMO leaders are able to overcome employee resistance to structural change by instilling new norms and behaviors that support new ways of performing and coordinating work.

In addition to these antecedents of structural change flexibility being consistent with the flexibility literature, these antecedents also have conceptual support from configurational theory. Configurational theory explicitly emphasizes three change-stability dynamics that are related to a firm's ability to structurally change (i.e., the fit between environment and firm processes and structures, the power-dependence relationships among stakeholders, and the pattern of commitment by members within the firm). Specifically, these dynamics highlight the central importance of gaining support from leadership power bases (i.e., the stake holders), as well as the organizational members. Once support from these two groups is obtained, the third dynamic is to build structure and processes to enable the new alternative interpretive scheme to give coherence to the new configuration. As such, the three SCMO structural change flexibility antecedents mirror configuration theory's change-stability dynamics.

Among the various environmental dimensions that have been studied within organizational research, environmental dynamism has played a central role (e.g., Dess and Beard, 1984; Fawcett and Closs, 1993; Lawrence and Lorsch, 1967). The general argument is

that a more dynamic environment requires greater organizational change to preserve congruence with the environment and maintain its competitiveness (Galbraith, 2002). Fine (1998) also posits that the clockspeed of an industry directs the pace at which organizations need to change processes and routines. As such, we expect that Environmental Dynamism moderates the relationship between *SCMO Structural Change Flexibility* and performance. In other words, when environmental dynamism exists, the path between SCMO structural change flexibility and performance becomes stronger. Figure 5-1 depicts the conceptual model described above.

Figure 5-1: SCMO Structural Change Flexibility



Expected Contributions and Future Research

It is expected that future research on the proposed model will contribute to theory and practice by developing and testing the antecedents of *SCMO Structural Change Flexibility*. Additionally, the ability to illustrate the impact of SCMO Structural Change Flexibility on

performance is important. The impact of environmental dynamism can also be tested in future research. Finally, research could be conducted to investigate different *SCMO Structural Change Flexibility* strategies to determine if performance outcomes vary significantly based on organizational structures at the firm, SBU, and SCMO organizational level.

5.2 SCMO Strategic Integration Within the Global Firm

All of the firms in our study were pursuing global strategies. One common challenge that global firms face is to manage the complexities related to achieving efficiencies across geographically separated markets, while at the same time being responsive to unique market demands (Gupta, 1987). In practice, SCMOs have also strategically integrated their operations and aligned goals with internal corporate and strategic business unit (SBU) organizations. However, SCMO strategic integration is not well understood and research is limited to a few studies in the purchasing (Johnson and Leenders, 2008; Narasimhan and Das, 2001), manufacturing (Hayes and Wheelwright, 1984; Skinner, 1969; Swink, Narasimhan, and Wang, 2007), and logistics (Stank, Davis, and Fugate, 2005) contexts.

SCMO strategic integration is particularly crucial for firms pursuing global strategies, as these firms balance tensions between global efficiency goals and local responsiveness goals. Corporate (i.e., firm) level strategy is generally concerned with the types of businesses (SBUs) the firm should be involved with to provide value to the shareholders (Galunic and Eisenhardt, 1994; Gupta, 1987). In order to examine this issue, several authors have investigated multi-business firms in an effort to examine and differentiate between corporate level strategies

which pursuing either related diversification or unrelated diversification (Galunic and Eisenhardt, 1994; Gupta and Govindarajan 1986). Firms that pursue related diversification generally do so to gain degrees of efficiency and consistency through centralized decision-making (Galbraith 2002) and cross-division coordination (Govindarajan 1988; Porter 1980).

On the other hand, firms that pursue an unrelated diversification strategy seek to reduce financial risk through expanding the firm's portfolio (Rumelt 1974). Unrelated diversification strategies do not require cross-division synergies given that divisions are allowed to operate independently and decision-making is generally decentralized (Galbraith 2002; Govindarajan 1988).

Once firms determine the overall firm level strategy (e.g., unrelated or related diversification), the existing SBUs also develop their own business-level strategies as SBUs are semi-independent organizations within a firm that manage different product or market segments. Porter (1980) posits that a business positions itself by leveraging its strengths. Porter (1980) argues that a business' strengths ultimately fall into one of two categories, either cost leadership or differentiation. A low cost strategy is based on the intent to become the low cost producer within the industry (Porter, 1980). Whereas a differentiation strategy is based on the intent to offer products or services that are perceived to be unique within the industry (Porter, 1980). Further, cost leadership or differentiation strengths can be implemented in the market in broad or narrow scope, which is defined as a focus strategy (Porter, 1980). A focus

strategy is one where the business is able to tailor product development strengths to a relatively narrow market segment (Porter, 1980).

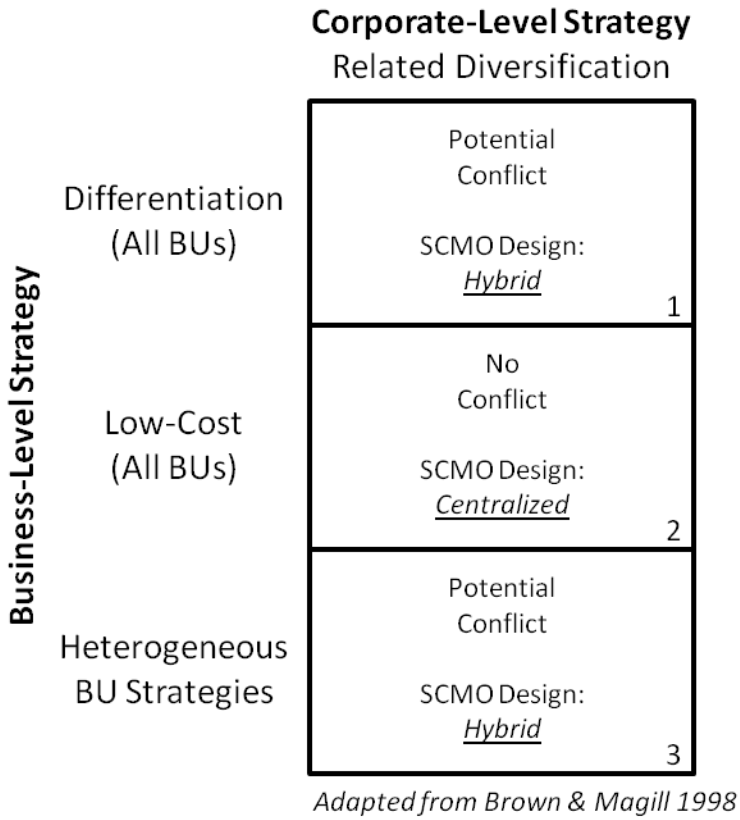
The strategic management and organization design literature predicts the optimal design for SBUs pursuing a differentiation strategy is a decentralized model to handle exceptions and the rapidly changing environment (Galbraith 2002; Porter 1980). For SBUs pursuing a low-cost strategy, a centralized model is considered optimal in order to gain synergies and consistency (Galbraith 2002; Porter 1980).

To summarize, firm level strategies are typically distinguished as either unrelated or related diversification and business level (SBU) strategies are typically distinguished as differentiated, low cost or focused. An interesting question arises from this categorization – do firm level and business level strategies need to be consistent with one another? For example, if the firm level strategy is one of related diversification, which requires efficiency and consistency, it implies that the business unit strategy should be cost focused. Brown and Magill (1998) proposed that conflict could arise under conditions where a mismatch occurred between corporate or firm level strategy and the SBU competitive strategy (e.g., SBUs with differentiated strategies operating within a firm with a related diversification strategy).

We take the Brown and Magill (1998) model one step further by adding the optimal SCMO strategy as well. For example, under a differentiated business unit strategy, we would expect to see the SCMO organized in a decentralized manner whereas a cost strategy would favor a more centralized SCMO structure. However, these SCMO design strategies may be

incongruent with the firm level strategy. A related diversification strategy at the firm level would favor a centralized SCMO structure, while an unrelated diversification strategy at the firm level would favor a decentralized SCMO design. Figure 5-2 highlights the potential conflicts that can exist by examining strategic disconnects at the business unit and SCMO level when firms follow a related diversification strategy.

Figure 5-2: SCMO Design Implications of Potential Corporate-SBU Strategic Conflicts



Adapted from Brown & Magill 1998

Cells 1 and 2 assume every SBU in the firm pursues the same competitive strategy (i.e., differentiation and low-cost respectively). Cell 3 assumes that competitive strategies among SBUs within a firm are not homogeneous. In other words, every SBU in the firm does not

pursue the same competitive strategy. Only one of the three cases results in an optimal SCMO structure according to the literature (i.e., a pure form of centralization or decentralization). This suggests that a hybrid between pure centralized and decentralized models would be more appropriate for the other two cases. Field interviews support the notion that reconciling the demands of contradictory strategic goals was a very real and practical concern for many of the SCMO leaders interviewed. Interviews further validated that a hybrid structural form, where decision making for supply chain operations is shared between SBUs and the SCMO, not only existed, but was common.

5.2.1 Strategic-Operational Centralization Hybrid Structure

The centralization-decentralization debate: How should a global firm distribute decision-making authority regarding supply chain operations? Should decision-making authority be concentrated in a central SCMO? Or, should decision-making follow the decentralized model, where authority is given to SBU leaders who are accountable for profit and loss of the business? Researchers have clearly documented the advantages and disadvantages of each model (e.g., Galbraith, 2002; Lawrence and Lorsch, 1967; Thompson, 1967).

Advantages of the centralized model generally lie in the areas of improving scale and, managing standards, and leveraging capabilities across the enterprise (Galbraith, 2002). These attributes were termed as “functional excellence” by managers in the interviews. Specific examples include leveraging the firm’s buying power across divisions when negotiating direct or in-direct material; reducing fragmentation and poor communication across divisions by sharing

knowledge; reducing duplication of resources; developing specialized experience for knowledge-intensive activities; and reducing variance in standards to meet quality objectives.

Conversely, the advantages of the decentralized model include preserving legitimate differences among the business units. Attributes managers linked to "business excellence" included improving responsiveness, flexibility, and innovation. Specific examples include increasing decision making speed; allowing SBUs to stay close to customers and markets to understand their unique needs; and testing new ideas without having to conform to firm-wide standards.

Managers were very interested in issues regarding centralization and decentralization. In fact, respondents echoed the findings in the literature regarding the inherent tension between centralization and decentralization and the advantages and disadvantages of each. However, what emerged through many of the interviews was that the centralization-decentralization decision was not a dichotomy as is typically presented in the supply chain literature (e.g., Chow, Heaver, and Henriksson, 1995; Droge and Germain, 1989; Kim, 2006). The notable exceptions to this statement are Johnson, Leenders, and Fearon (1998) and Johnson, and Leenders (2001; 2003; 2008), where purchasing activities were examined under centralized, decentralized, and hybrid approaches. In our interviews, a more detailed perspective was described, where explicit centralization-decentralization choices were jointly made among pertinent stakeholders (i.e., SBU, SCMO, and corporate leaders). In particular, agreements were created between individual SBUs and the SCMO regarding which specific supply chain activities would be centrally managed and which ones would be regionally or

locally managed. In other words, the whole supply chain function was not centralized or decentralized. Further, individual supply chain related functions (e.g., sourcing, manufacturing, and logistics) were not entirely centralized or decentralized.

Many of the managers interviewed described how their firm's supply chain resources are split in two components - one portion that is local and one portion that is regional to global. The local portion is focused on SBU specific operational processes that are required to "convert the order to cash." Activities contained in the local component included order management, production scheduling and planning, ordering replenishment materials, materials handling, control and storage of work-in-process inventory, transportation tendering, delivery, and customer service. Decisions for these activities were decentralized to local operating units. In this manner, business leaders controlled decisions concerning the level of responsiveness, flexibility, and innovation needed to meet the SBU's unique requirements.

Conversely, the global component of the firm's supply chain resources was focused on strategic issues. Managers described these activities as consisting of high value decisions and/or capabilities essential to the firm's success. Managers felt that decisions in strategic areas needed to be made from a broad perspective and were best controlled by a centralized body. Sourcing activities were the most common to be centralized, such as establishing and maintaining supplier relationships and developing the material strategies with suppliers on future initiatives. Planning activities at this level usually involved infrastructure elements, such as forecasting, developing, and re-allocating network capacities. Oftentimes "centers of excellence" operated at this level where knowledge, process expertise, and resources were

shared across SBUs. Of particular interest to this study is the capability building groups. These groups contain functional experts that design and deploy new processes and technologies, which were often associated with organizational change. The solutions were typically developed jointly and tailored for a given SBU to provide it with the next breakthrough capability.

In many firms, the global component acted as a strategic partner with the SBUs to assist in their business planning and strategy development. We spoke to several SBU leaders and they viewed the central SCMO as co-creators in strategy formulation, shared policies, and processes. Collectively, the SBU - SCMO team looked at long term channels to market -- where future customers and products are forecasted to be and how and where to shift the sources of supply and network assets to meet future demand. One SCMO Executive VP explained how he conceptualized the need for both global and local components of the supply chain:

> "We need to understand what kind of technologies and processes we drive. What are global processes and what are local processes we don't need to harmonize? Then in-between are the global, but locally run processes. So, those are processes that need to be the same or at least similar, even if they are locally run. Then finally, [what are the] global processes that are run globally? We need to understand those and then start driving them."

SCMO leaders asked these types of questions for each SBU. The resulting supply chain centralization configuration was custom fit to each SBU. Although the exact compromise between global and local decision making was unique to each SBU, the general split exhibited regularity. As described above, the SCMO and SBU developed a:

Strategic-Operational Centralization Hybrid Structure: A centralization configuration where strategic decisions are made centrally and operational decisions are made locally for supply chain operations.

So far, we have not addressed organizational "ownership" of the global and local supply chain resources. In most cases, global resources reported to a centralized SCMO. For local supply chain resources, we saw it operate effectively regardless of which organization "owned" them. The resources could be centrally owned by the SCMO and locally embedded in the SBUs or locally owned by the SBUs.

5.2.2 Internal Supply Chain Governance Intensity

As discussed in the previous sections, different supply chain activities have different operational characteristics and economics, and thus may need to be managed differently for SBUs with different needs. The decision rights of each supply chain activity could be centralized, decentralized, or shared. So how are decision rights established, managed, and modified as business conditions change in global firms? Many of companies interviewed had governing bodies in place that consisted of leaders from supply chain related organizations, SBUs, and the firm.

These governing bodies typically took the form of lateral teaming mechanisms, such as cross-functional committees. Some firms had a hierarchy of governing committees, consisting of a steering committee and lower level standing and ad-hoc committees. In general, the primary focus of this governance body was to align goals between the global and local supply

chain components for each SBU. In other words, this is where strategic conflicts identified in Figure 5-2 were negotiated. The result was a balance between functional excellence goals (efficiency and consistency) and business excellence goals (responsiveness, flexibility, and innovation) that was unique to each SCMO-SBU dyad. Other areas under the purview of the governing body are setting standards, agreeing on processes, reviewing exceptions, and assessing performance.

Goal alignment was worked out day-to-day by managing interdependencies between the global and local activities. Specifically, the governing body would seek to understand how global initiatives and decisions affected local activities and how local initiatives and decisions affected global activities. For example, when the SCMO was developing a new global process, business leaders would assess impacts to their operations and provided feedback and recommendations. This process also worked the other way, where SCMO leaders reviewed impacts on global operations resulting from proposed changes to local supply chain structure initiated by SBUs.

Supply chain governing bodies varied widely with regard to the degree of formalization established. Some had written charters and service level agreements between the SCMO and SBU, while other only had KPI's with targets written down. Key elements of the SCMO-SBU service level agreements included (whether written or unwritten): customer service level, replenishment schedule, types of forecasts to expect, stock availability, inventory level, and demand fulfillment level for all product lines. The following quote is how one SCMO manager

described the nature of the discussion as both the global and local SCMO components measured their performance and mapped a course for the future:

> "We have a governing umbrella…[where] we have global score cards that we can manage and we monitor the cost of the supply chain, efficiency of the supply chain, inventory management, customer service, and responsiveness. So we do monitor that and we roll it up by country, by region up to global so it's kind of both. We want to detect if there are issues and we also look at the projects going forward to improve what we set out to improve."

Although the managers interviewed are from firms across four different industries, many of the firms had implemented similar structural arrangements to govern their supply chain activities. This observation suggests some level of convergence regarding the global structuring of supply chain resources, as firms seek to achieve functional excellence on a global scale, while establishing local supply chain business excellence. As such, we provide the following definition:

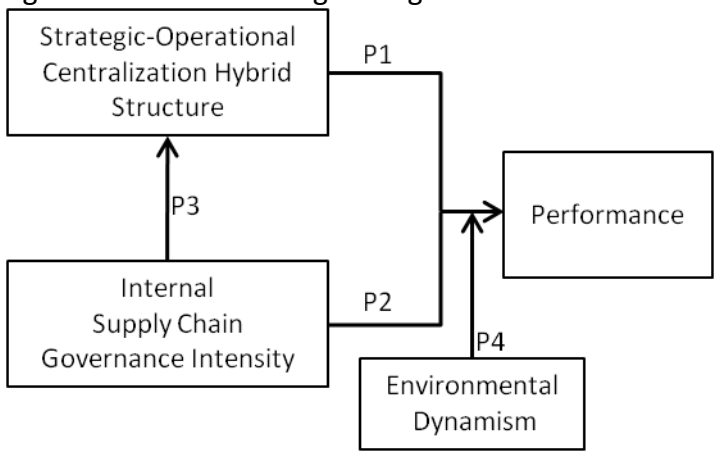
> *Internal Supply Chain Governance Intensity: The degree to which supply chain stakeholders emphasize participation in cross organizational forums where supply chain related authority is allocated and managed.*

Managers indicated that the existence of both a *Strategic-Operational Centralization Hybrid Structure* and *Internal Supply Chain Governance Intensity* were related to performance outcomes. Specifically, the *Strategic-Operational Centralization Hybrid Structure* provided a structure where both global and local needs were satisfied. In fact, respondents claimed that by re-conceptualizing the central SCMO from a concentration of decision making and control, to one of facilitation and coordination, "the right amount of centralization actually promotes innovation." The *Internal Supply Chain Governance Intensity* provided a "check and balance" mechanism where global and SBU specific score cards were managed by creating useful

coordination links that may not have arisen spontaneously. This body also monitored service level agreements to ensure customer service and responsiveness targets were met.

Literature also supports linkages to performance for these structural elements. There is a vast amount of research involving the strategy-structure-performance (SSP) paradigm (see Galunic and Eisenhardt, 1994 for an excellent review of SSP history). The SSP paradigm holds that where congruency exists between an organization's strategy and structure, superior performance is predicted. Thus, when strategic conflicts exists between a corporation and its SBUs resulting from firms pursuing a related diversification strategy (see Figure 5-2), we predict superior performance if appropriate structures are in place to work through the corporate-SBU competing objectives. Namely, we expect both *Strategic-Operational Centralization Hybrid Structures* and *Internal Supply Chain Governance Intensity* to be related to performance for firms pursuing a related diversification strategy (see Figure 5-3).

Figure 5-3: SCMO Strategic Integration Mechanisms



Again, *Internal Supply Chain Governance Intensity* is likely to resolve the inherent strategic conflict for many firms pursuing a related diversification strategy. The constant alignment of global and local goals allowed managers to jointly develop new objectives in response to priority shifts between functional and business objectives. One possible response to this situation is an adjustment in allocation of decision making rights between global and local supply chain components. As such, we expect *Internal Supply Chain Governance Intensity* is related to *Strategic-Operational Centralization Hybrid Structure.*

Among the various environmental dimensions that have been studied within organizational research, environmental dynamism has played a central role (e.g., Dess and Beard, 1984; Fawcett and Closs, 1993; Lawrence and Lorsch, 1967). The general argument is that a more dynamic environment requires greater organizational change to preserve congruence with the environment and maintain its competitiveness (Galbraith, 2002). Fine (1998) also posits that the clockspeed of an industry directs the pace at which organizations need to change processes and routines. Hence, we expect Environmental Dynamism to

moderate the relationship between Strategic-Operational Centralization Hybrid Structures (Internal Supply Chain Governance Intensity) and Performance. In other words, when environmental dynamism exists, the path between Strategic-Operational Centralization Hybrid Structures (Internal Supply Chain Governance Intensity) and performance becomes stronger.

Expected Contributions and Future Research

Features of such hybrid structures remain virtually unstudied, particularly as increasing globalization has resulted in a continuously evolving supply chain structures. As such, several important implications for future research can be gleaned from this study. First, explicit centralization-decentralization choices were jointly made among pertinent stakeholders within the firm (i.e., SBU, SCMO, and corporate leaders). Given that firms selectively centralized or decentralized certain supply chain processes, this suggests that the cost/benefit tradeoffs between corporate and SBU strategies are not the same across all SBUs. Therefore, future research could investigate which contingencies predict how decisions for different supply chain processes will be allocated. Such research may identify a more refined allocation than the strategic-operational model proposed in this study. Exploration in this area may also provide insight into how the functional scope of SCMOs is determined. In other words, what contingency factors govern which supply chain related functions will be combined into a single unit grouping.

Research regarding internal governance of supply chain operations is extremely limited. Future research could examine which lateral mechanisms are associated with specific

governance purposes. If firms continue to face strategic conflicts as outlined in this study, expertise in the design of lateral organization capabilities is likely to become a critical SCMO competency. Another area of investigation is how SCMO governance overlaps with other enterprise-wide governance processes, such as research and development, finance, information technology, and human resources. For practitioners, this study identifies the types of integration practices which can be used to balance tensions between global and local objectives.

APPENDICES

APPENDIX 1: Qualitative Codes

Table A-1: Qualitative Codes

Code	Definition
ORGANIZATIONAL CHANGE DRIVERS	
Driver - Leadership change	Changing key positions within the firm
Driver - Strategy change	Changes in how a company chooses to compete
Driver - Synergies recognized	Identifying areas where changes could yield potential efficiencies
Driver - M, A, & D activity	A firm combines or separates organizations through ownership or cooperative agreement
Driver - Outsourcing	A firm delegates work to another firm
Driver - Offering change	A firm changes the nature of its products or services (i.e., its value proposition)
Driver - Performance expectations not met	Not achieving desired outcomes
Driver - Current structure impedes task accomplishment	Organization structure hinders meeting desired objectives
Driver - Customer sector changes	Potential impacts from firms and/or consumers that purchase the focal firm's products
Driver - Competition sector changes	Potential impacts from a competitor's firm, products, and/or competitive tactics
Driver - Technological sector changes	Potential impacts from innovations in processes, products, or materials and general trends in relevant research and science
Driver - Regulatory sector changes	Potential impacts from governmental regulations, legislation, policies, or political developments
Driver - Economic sector changes	Potential impacts from economic factors such as economic growth rate, exchange rates, stock markets, inflation rate, trade imbalance, interest rates, and unemployment

Table A-1 (cont'd)

Code	Definition
ORGANIZATIONAL CHANGE DRIVERS	
Driver - Socio-cultural sector changes	Potential impacts from demographic trends and general social values or expectations
SENSING	
Sensing means - informal	Using an unofficial process to search for information (e.g., a manager's individual initiative). Typically carried out on an ad-hoc basis with varied informational depth.
Sensing means - formal	Using an official process to search for information (e.g., an organizational process). Typically carried out on a systematic basis with consistent informational depth.
Sensing sources - internal, personal	Searching for information from within the firm through direct communication with other individuals or groups.
Sensing sources - internal, impersonal	Searching for information from within the firm through media (e.g., documents, audio, and video).
Sensing sources - external, personal	Searching for information from outside the firm through direct communication with other individuals or groups.
Sensing sources - external, personal	Searching for information from outside the firm through media (e.g., documents, audio, and video).
ORGANIZATION STRUCTURE	
Before structure change - unit grouping	The configuration of formal organizational work units within in a firm's hierarchy prior to a specific structure change
Before structure change - integration mechanism	A linking mechanism used to achieve an integrated state among separated unit groupings prior to a specific structure change
After structure change - unit grouping	The configuration of formal organizational work units within in a firm's hierarchy after a specific structure change
After structure change - integration mechanism	A linking mechanism used to achieve an integrated state among separated unit groupings after a specific structure change

Table A-1 (cont'd)

Code	Definition
ORGANIZATION CAPABILITIES	
Capability desired - Product oriented	An integrated combination of skills, processes, technologies, and human abilities housed within the firm that create a competitive advantage *through creating cutting-edge products, useful features, and/or new applications*
Capability desired - Operations oriented	An integrated combination of skills, processes, technologies, and human abilities housed within the firm that create a competitive advantage *through delivering products that posses a combination of superior cost, quality, and/or convenience*
Capability desired - Customer oriented	An integrated combination of skills, processes, technologies, and human abilities housed within the firm that create a competitive advantage *through building customer relationships and delivering customized solutions*
Capability desired - Mixed	An integrated combination of skills, processes, technologies, and human abilities housed within the firm that create a competitive advantage *through a combination of product, operations, and /or customer oriented capabilities*
ORGANIZATIONAL INTERACTION	
Goal Conflict	The SBUs and SCMO have competing objectives
Goal Conflict Resolution	Processes or actions that used for the intent to resolve competing objectives between SBUs and SCMO
Organizational Member Assimilation	SCMO management actions aimed towards assisting employees to become familiar with new structure changes
Structural Change Outcome Measurement	Monitoring performance results during or after structural change implementation
ENVIORNMENT	
Environmental dynamism	The rate in which elements in the firm's task and general environment change
Environmental predictability	The degree to which elements in the firm's task and general environment are foreseeable

APPENDIX 2: Environmental Sectors

Respondents were asked if changes in the following environmental sectors were related to SCMO structural change:

Economy
- a) Emerging or declining markets
- b) Currency exchange rates
- c) Inflation rate
- d) Unemployment rate

Suppliers
- a) Global sourcing
- b) SC security
- c) Financial and political health
- d) Quality, quantity, price, and stability

Government in the regions you operate
- a) Amount of government activity
- b) Political stability and risk
- c) Taxes
- d) Import or export restrictions

Legal
- a) Environmental laws
- b) Product safety laws
- c) Intellectual property laws
- d) Tax law - tax rates and business investment write-offs

Technology
- a) Information technology - e.g., Enterprise Resource Planning (ERP) systems

Stakeholders
- a) Lobbyists
- b) Shareholders
- c) Societal groups or social stewardship expectations

Labor
- a) Quantity available
- b) Quality available
- c) Union involvement

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