PROCESS AND OUTCOME FACTORS OF ENTERPRISE TRANSFORMATION: A STUDY OF THE RETAIL SECTOR

A Dissertation
Presented to
The Academic Faculty

by

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In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy in the
School of Industrial and Systems Engineering

Georgia Institute of Technology
August 2006

PROCESS AND OUTCOME FACTORS OF ENTERPRISE TRANSFORMATION: A STUDY OF THE RETAIL SECTOR

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ACKNOWLEDGEMENTS

The last four years have been long, extremely rewarding, often frustrating and always challenging. I could never have completed the work, both academic and personal necessary without the support on many levels of numerous individuals. Although not enough of an acknowledgement to these people, I would at least like to mention the efforts and my gratitude to several colleagues, friends and family.

First and foremost, it's true that not one iota of the work I have produced over the past four years would have been possible if it were not for the unfailing support and encouragement of my family. My parents, George and Marta Garcia, in addition to being truly the world's most amazing guides and teachers, have always been standing by during this challenging process with kind and supportive words, distractions, food, love and anything else I could ever need or want. My sister, Tania, has equally provided me with a shoulder to cry on, and a kick in the behind when needed, as well as endless hours of amusement, entertainment and spoiling me in general. Her husband and my good friend, Jason Nadler, has equally been a pillar to which I could always turn for help, both professionally and personally, and his unwavering ability and willingness to listen and provide his own insights and experience in the academic realm have been always just what I have needed.

I would like to thank my entire thesis committee and especially my advisor and thesis chair, Bill Rouse. Bill saved me from several unpleasant and unproductive situations early in my PhD career, and provided me with a home in which to pursue my interests and develop my academic knowledge. Bill has shown me, both through

example and through explanation, many of the tricks and best qualities of this profession and I know he will continue to serve as an inspiration on many levels as I continue through my career, wherever it may lead. Ken Boff has gone above and beyond what I could have asked of an outside committee member – often flying into Atlanta to attend my meetings, even though his work and personal schedules leave little to no room for additional travel. His insights have always been thoughtful and in depth and his challenging me on many levels has always led to improvement of my work. I cannot express my gratitude to Ken enough. Amy Pritchett, Brani Vidakovic and Chip White, the other members of my committee, have consistently been thoughtful, insightful and ready with help and advice whenever I have needed it. The committee as a whole functioned well together and the feedback and commentary they provided during my thesis development work was invaluable in helping me produce a work of which I am proud and I hope they are too.

Many other friends and family have helped me in many ways along the process over the past four years and also deserve mention here. Carrie Crystal, a fellow student and never-ending smiler, listener, cocktail buddy and sympathizer, has never failed in her steadfastness. Rahul Basole has gone through this process with me, and we have always been able to share our ups and downs both professionally and personally, and I truly appreciate it. Ian White has always been there as a listener and friend and he is irreplaceable in my life. Many other colleagues and friends have provided support, time and feedback over the years: Ana Isabel Martin, Tina Lopez-Gottardi, Frank Rothaermel, Marie Thursby, Monica Gavino, Carolyn Hodge, the entire administrative staff at ISyE, and many other colleagues who have provided scholarship and feedback. Thanks to all.

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SUMMARY

A comprehensive model of enterprise transformation is developed, along with a more specific model that includes multiple process factors inherent in transformation. The process factors are drawn from literature as well as primary research conducted for the dissertation. Specific considerations of time, cognitive attention, control and leadership are proposed to affect various outcome measures of transformation. This dissertation is conducted within the context of the retail industry. Financial analyses are included in order to provide an empirical basis for choice of retail industry context. Interviews with multiple retail executives acted as a source of primary, qualitative data with which to develop the model and inform the creation of a survey. A broad based empirical survey provided a second source of data with which to test the hypotheses about the impacts of multiple transformation factors on success metrics.

Results indicate a large percentage of the variance in the outcomes of transformation can be explained with specific, actionable measures. Clarity of goals and plans, and strong leadership support are all shown to be important in affecting successful change. Additional factors, including flexibility in plans and goals, and leadership communication levels provide additional support for the hypotheses. Implications for theory and practice are elaborated, and future considerations for the research are discussed.

CHAPTER 1 – INTRODUCTION

1.1 Introduction

As technological innovation, globalization, and other environmental factors increase their pace of change and thus their impact on organizational life, consideration of transformation becomes increasingly important to organizational scholars. Various aspects of the phenomenon of large-scale, fundamental change, or transformation, have been addressed in multiple literature streams. Among these areas are the antecedents to change, the processes of implementing and affecting change within an organization, and the outcomes of such changes. This dissertation explores these areas, along with the definitions of key terms such as "transformation" and "enterprise". The processes of transformations, and their component factors are explored at length, and empirically tested according to a proposed model.

Among the key motivations for this research are several questions that have not been adequately addressed in the extant literature. These questions include:

- How do we delineate the scope of, and then measure and quantify transformation?
- What factors are included in multi-stage transformation processes and how are these factors measured?
- Given the above, which process factors are more or less related to and indicative of successful transformation?

Long-term change processes are rife with uncertainty and risk, and discussing the fundamental nature of these questions, as well as their answers, can help to provide more insight and clarity. Data on the high rate of failure of transformations indicate that there are several barriers and hurdles that organizations and their leaders must contend with in

order to successfully transform. Avoidance of change processes is not an option for successful and sustainable entities.

This dissertation takes a multi-disciplinary approach to answering these and other questions related to large-scale organizational change questions by integrating several research streams. Much of the foundation for the work here is found in the management literature, including strategic management, organizational theory, and organizational behavior research. In addition, insights and models from cognitive engineering and closely related fields are referenced to provide unique insight into behavioral and cognitive aspects of transformation processes. This integration of disciplines provides a more holistic picture than what can be presented and measured by focusing on singular, or domain-specific aspects of change. Figure 1.1 includes a visual representation of the various theoretical domains considered here. Although different disciplines have been grouped into discrete pieces, these lines have been drawn for the ease of presentation, and according to traditional research definitions. Figure 1.1 illustrates that there are many overlaps, and that some of the distinctions between topics in different domains of study are ambiguous.

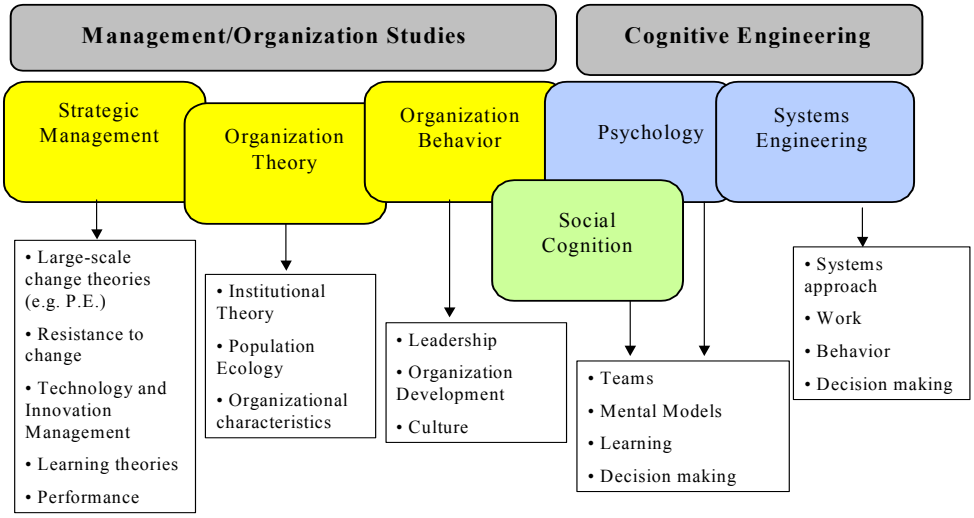


Figure 1.1 : Literature Review and Theoretical Domains

1.2 Motivation

Because this dissertation draws on several streams of literature, its contribution is to all of the traditions upon which it builds. The academic literature is enhanced by this work on several levels. Because much of the foundation theory and empirical work comes from strategic management and related fields (organization theory, organizational behavior, technology and innovation management) there are several areas of contribution. Few change scholars have focused on the explicit modeling and measurement of transformation processes. Although generalized notions of variables that contribute to successful large-scale change have been included in the general body of knowledge, measurable and actionable factors have not been extensively isolated in the past.

Furthermore, this dissertation integrates and synthesizes much of the change work, including that related to technological discontinuities, innovation and environmental influences on the organization, by creating an overall typology of

misalignment forces. The discussion about forces that cause the need to transform in complex, dynamic organizations in Chapter 2 reviews and integrates these streams to present a concise and comprehensive typology. Lastly, in the management area specifically, the link between specific transformation process factors and the subsequent outcomes of the transformation is one that has not been sufficiently attended to in the past. This link provides insight into some of the ways in which managers can influence the probability of success during dynamic periods in an organization's life.

The inclusion of cognitive engineering and related fields in the development of the transformation model contributes to those scholarly traditions. Cognitive engineering research developed from the intersection of cognitive science and research focused on the design of machines or systems. Some key researchers of the discipline, whose work is cited in this thesis, include Lisanne Bainbridge (1997), Alex Kirlik (1998), Erik Hollnagel (1993), and Jens Rasmussen (1988), among others. The field has built much of its development on relevant aspects of the psychology literature, in addition to the domain expertise and design focus that comes from its engineering roots. Relevant to this dissertation research and the organizational science domain are the inclusion of context and environment, as well as the importance of human behavior and action in relation to environmental constraints. These interdisciplinary research areas have been brought into cognitive engineering studies and now into the present study of organizational transformation. Despite many of the developments in the field of cognitive engineering, attention to social situations, and specifically to organization life and design has not been an area of much attention for these scholars. Therefore, the work here contributes to the domain by bringing in a wider perspective and consideration of

context. The sections in Chapter 2 that review and describe cognitive engineering models and social cognition work provide the connecting point between organization studies and cognitive engineering research.

The specific integration of management and cognitive engineering foci can be viewed through two similar, but distinct perspectives. First, we can use the individual level considerations as a metaphor for what happens at an organizational level. We must keep in mind that often the organization acts as an autonomous entity, with identifiable characteristics, personality (culture) and explicit and implicit knowledge. The second perspective through which to understand integration of these two disciplines is in considering the impact that group behavior, multi-level changes, and other organizational-level phenomena have on the individuals that are a part of the larger entity. We can then discuss the aggregation of those individuals and their reactions and behavior in terms of the impacts at a higher level of analysis, such as the organization as a whole. These two perspectives are not independent of each other, and may produce an almost circular feedback effect. Figure 1.2 below provides a visual representation of this discussion.

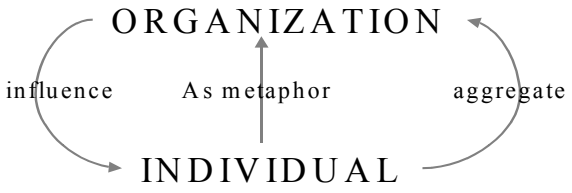


Figure 1.2: Relationship Between Individual and Organizational Levels of Analysis

Cognitive engineering research provides an explicit focus on cognitive goals, which for the purposes of this research lends insight into the idea of aggregate goals, at an organizational level. We can also develop more insights into the interactions between individual goals and organizational goals. There is an explicit consideration of intended goals of transformation processes included in the Transformation Model in Chapter 3.

Recent articles in multiple outlets have made specific calls for integrated and multi-disciplinary research that advances divergent fields with common ties, either theoretical or empirical. Davis and Marquis (2005) recently suggested that organization theory, as a discipline, has begun to move toward more institutionally-based perspectives and consideration. Among their discussions of necessary work for the advancement of our understanding of organizational phenomena, is the notion that mechanism-based theorizing about the processes of changes in work needs to be included more often. This present study fits squarely into that domain, by examining the action, and design-based processes that are implemented during the course of large-scale, multi-period enterprise transformation.

In addition to calls for inter- and multi-disciplinary work, there have been numerous calls for multi-level considerations in multiple fields. Davis et al. (1997), House, Rousseau, & Thomas-Hunt (1995), and Klein, Tosi, & Cannella (1999) all explicate the need for both individual level and organization level theorizing in the same studies. The relationships between macro and micro level phenomena are areas ripe for attention and of immediate relevance to practitioners. This study includes discussions and modeling of both micro and macro level knowledge and some steps towards the integration of those factors. Relationships between individual behavior and reaction to

changes, as well as leadership factors are all conceived to relate to organization level outcomes from transformation. The measurement and analysis section delves deeper into this area, and clarity comes from making logical and theoretically sound connections between multiple levels of analysis within the enterprise. The testing of the hypotheses developed within the context of the larger transformation model is determined by the most appropriate methods for the answers being sought. Chapters 5 and 6 delve into the multiple data collection and analysis methods used, the choices of which were clearly driven by the nature of the model and its proposed relationships.

In addition to calling upon extant research and theories to build a conceptual foundation for the Transformation Model developed here and testing of its proposed relationships, there is also a general perspective drawn from a systems approach. The systems perspective provides a way of analyzing interrelated and dynamic entities that contain multiple parts, all of which are assumed to affect each other, especially in situations characterized by a high degree of change in any one part of the system. Senge (1990) in particular provides a nice discussion of the impact of a systems perspective when analyzing multiple aspects of an organization and its internal workings during times of change. By examining the interrelationships among system parts, we are able to gain more insight into how decisions are made, and how certain structures (based on these interrelationships) may determine and affect behavior, both at an individual and aggregate level. Inherent in a systems perspective is the assumption of complexity, and thus the integration of complex relationships and multi-level phenomena in the analysis of system changes and outcomes. Many other authors have discussed the notion of systems engineering in the context of enterprise-level analysis (Rouse, 2005a), providing

us with some theoretical background upon which to draw an overarching perspective for this research.

Scholarly research also provides a solid foundation upon which contribution to practice can be built. Development and measurement of factors included in transformation processes illuminate to managers the kinds of control they have over a traditionally messy design and implementation process. Linking the levels of some of these factors (time, plans, goals) to the outcomes of transformation only increases this insight by establishing general guidelines about where attention and support can be focused in order to help increase the success of change. The typology of misalignment forces found in Chapter 2 can also help managers and leaders, the designers of organizational life, attend to internal and external forces that may cause the need for major change. Anticipation of, or at least early detection of some of these forces may increase the time available to the organization to change, thus helping design more fluid and controlled processes.

1.3 Domain of Study

This dissertation addresses transformation in the context of the retail industry. This sector is one of the largest in the U.S. and the world, and has seen a tremendous amount of change in the last two decades. These changes have catalyzed massive transformation in the organizations that operate in the industry. Figure 1.3 below shows the changes in numbers of publicly traded retail organizations from 1984 to 2003. The industry shifts that have caused the consolidation and drastic change in the number of firms in the industry have come from several environmental forces that are discussed in

detail in Chapter 4. The context for the study aligns closely with the misalignment forces catalogued in the theoretical background discussion. The empirical research conducted here – both qualitative and quantitative – are specific to retail industry enterprises.

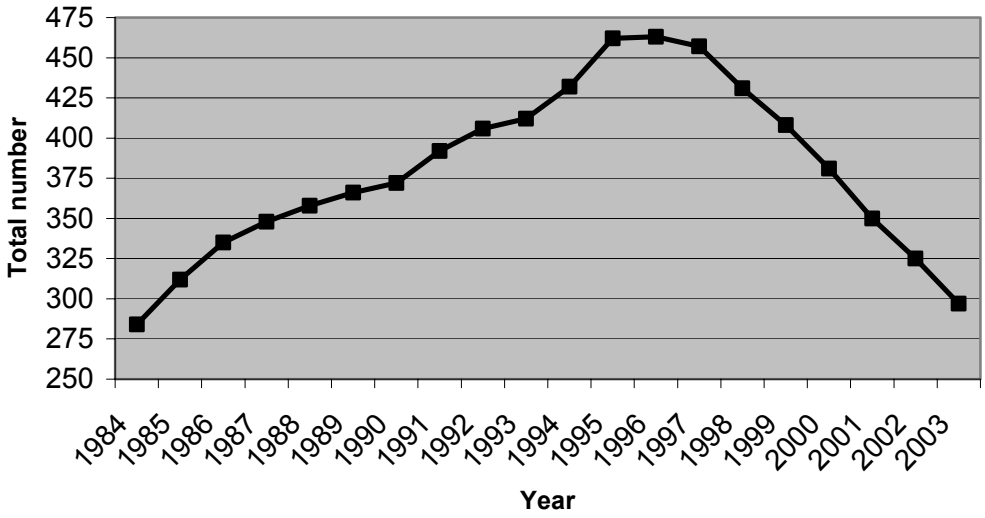


Figure 1.3: Number of public companies in the retail sector

Once a theoretical model is developed is it necessary to test the hypotheses and relationships presented therein. This dissertation includes such measurement by evaluating data from three sources. Archival financial data from public companies, interviews of top-level executives in retail and related industries, and a broad based survey of retail managers are all used to test the propositions and relationships developed throughout, and to provide context to the study. It is fundamental to the contribution of this work to be able to provide empirical (both quantitative and qualitative) insight into the mechanisms and relationships discussed.

The study presented in this dissertation includes several pieces that build on each other – including the contextual analyses described above, as well as the primary data collection techniques and analyses employed to test the proposed relationships presented in the conceptual discussion of transformation process and outcome factors. Figure 1.4 below provides a visual representation of the flow of the document and the study overall. This figure will be repeated in each chapter in order to provide the reader with a map of where the different pieces of detail and discussion fit within the overall study.

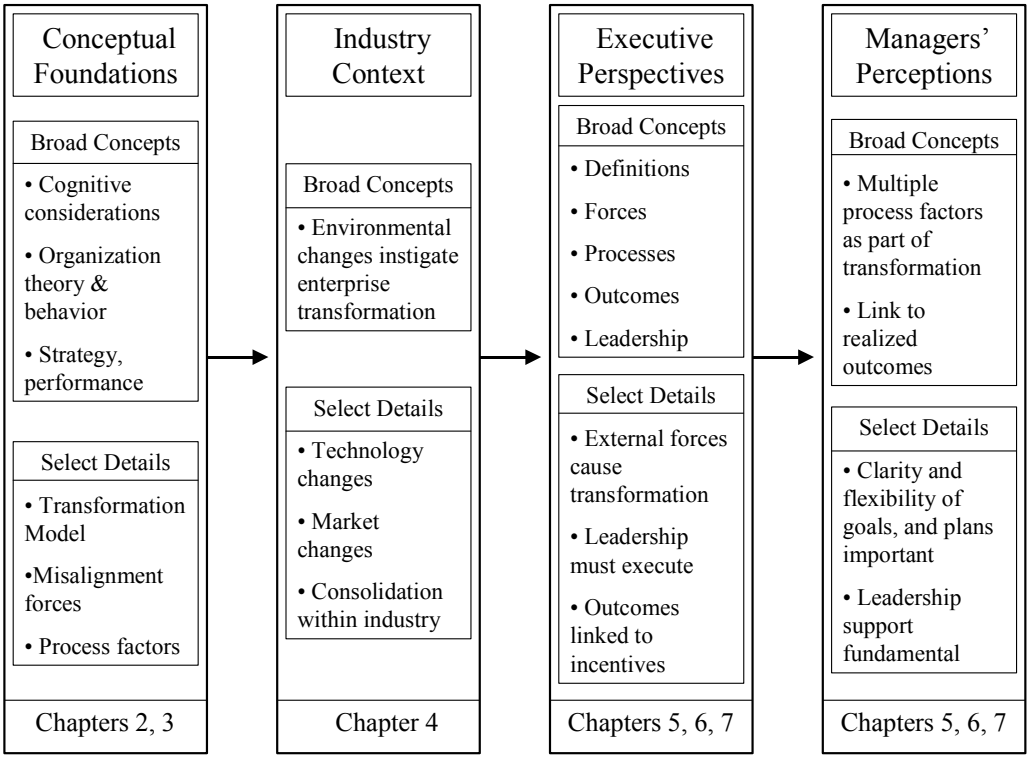


Figure 1.4: Thesis Flow Map

The dissertation proceeds as follows – the next chapter is focused on the literature and theoretical background used in developing the model presented later. Several

specific research bases of work are discussed and integrated, beginning with an extensive review of relevant work that helps define and bound the scope of transformation. Then literature on misalignment forces, decision-making and cognition, firm characteristics, process elements, and outcomes is all reviewed and brought to bear on the present study. The Transformation Model presented in Chapter 3 builds on the research reviewed, specifying an integrated, comprehensive model of the different antecedents and consequences of large scale transformation processes, some of which are tested using the data and analysis in this present work, and some of which are left for future research. The thesis continues by describing many of the contextual considerations that are specific to the retail industry. These elements are related to the factors hypothesized in the model, to be tested with the data. A description of methodology, data collection and the analyses all follow the discussion of context and theory. Discussion of the results and the impact on the theoretical portion of the thesis follows the empirical analyses. The thesis ends with a discussion of implications for industry and for future research and investigation.

CHAPTER 2 – THEORETICAL BACKGROUND

An extensive literature and research review is of fundamental importance for any extension of theory and its subsequent empirical testing. This chapter includes an extensive literature review of all domains being integrated here, categorized by relevance to the questions of transformation being explored.

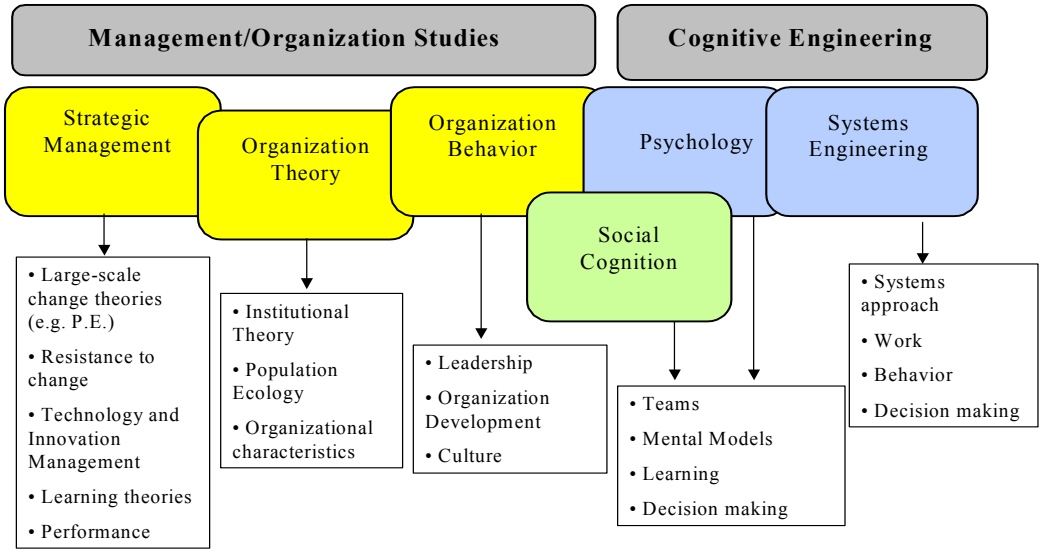
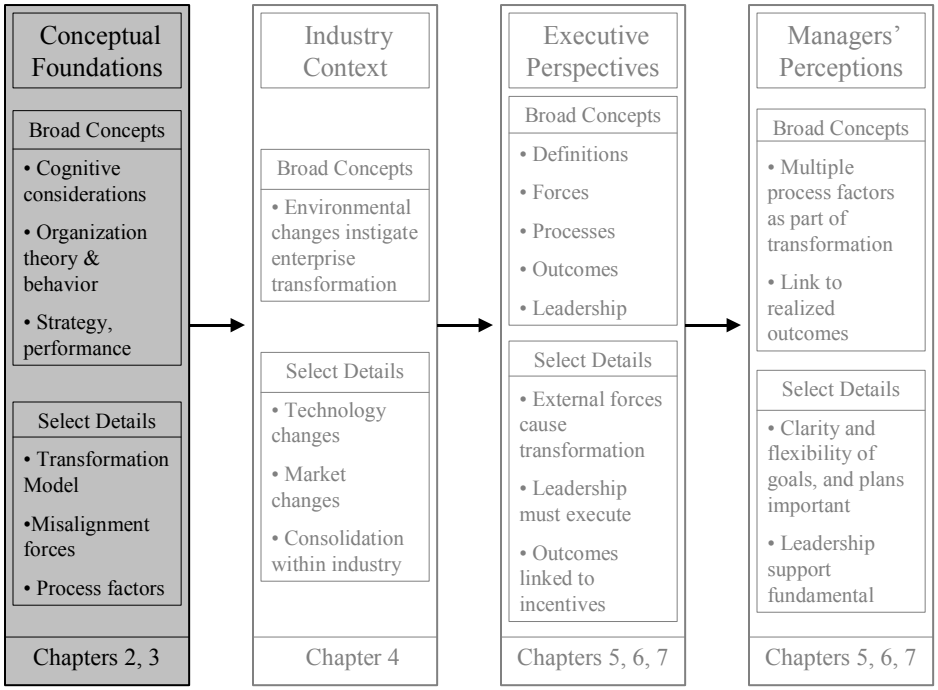


Figure 1.1 : Literature Review and Theoretical Domains

The above figure, repeated from Chapter 1, provides a visual display of the various theoretical domains that are drawn upon here to develop a model of Enterprise Transformation. This figure is not meant to be fully comprehensive of the domains under study, or to capture all of the overlaps between domains. Rather, it allows us to gain a sense of the sometimes-artificial lines that may be drawn between disciplines in order for researchers to conduct valid studies and measurements. The figure also helps us to understand that many of the same phenomena are addressed in multiple disciplines, and

each brings its own perspective and unique knowledge to our understanding of these questions. The literature review that follows, as organized by subsections throughout the chapter, will include detailed descriptions of many of the relevant studies in these multiple domains and their sub-fields, specifically as related to the questions of transformation processes and outcomes. This chapter and the discussion of theoretical background are accompanied by an Appendix (A) that includes a more detailed discussion of all the studies presented here. The chapter presents tables with summaries of all relevant studies, as well as initial discussion about the connection between the research discussed and the development of new ideas and hypotheses about transformation process factors and relationships. The Thesis Flow Map below, presented originally in Chapter 1, is repeated here with the appropriate box highlighted in order to demonstrate the portion of the thesis that is discussed in this chapter.



2.1 Definition of Enterprise

Enterprises can be defined in a number of ways. Enterprise information systems, for example, are those technologically-based systems that work to integrate and manage the information and other technological components of an organization. On a wider scale, an entire industry, with its value and supply chains and the interconnections between organizations may be viewed as an enterprise. For the purposes of this dissertation, the author takes a middle view on the definition of enterprise, and limits the study to individual organizations or entities as the enterprises in question. This view is supported by examining these entities as complex systems, drawing on the work that treats enterprises as systems (Rouse, 2005a).

For the purposes of the present study, enterprise is defined as an autonomous organization that has reported profit and loss responsibility. This can therefore include independent business units that operate as autonomous financial organizations, or entire corporations with several units that report aggregate financial metrics. The reasons for this limitation are two fold. First, in the retail sector, where this work is focused, many of the most complex and interesting enterprises are multi-unit corporations that aggregate the performance measures of the various units. Secondly, the financial analysis segment of the data evaluation is conducted on publicly available data from the Compustat™ database. The limitation of enterprises as profit and loss reporting entities allows for a similar representative sample to be included in the financial data analysis.

Enterprises can be analyzed as socio-technical systems, by recognizing the characteristics that make them analogous to other technical systems. The interrelationships between the different members of the systems: be they individuals or

teams; the dynamic quality of the system; the myriad ways in which one can define and measure performance, depending on the goals; and the cognitive elements of the key decision makers all define a large complex, dynamic enterprise as a system, much in the same way that we have traditionally defined more narrow and technologically-dependent systems. Czaja (1997) provides a good discussion of the socio-technical approach in cognitive engineering and related fields.

Senge, in discussing the elements of learning within organizations, highlights the need for systems-focused perspectives (Senge, 1990). Interrelated actions between different parts of an organization, and thus specific attention to these connections allows for a more robust and multi-faceted view of the factors that may affect changes and ultimately outcomes and success of the organization as a whole. This perspective is also employed by organization theory researchers who pay attention to internal notions of the firm, such as integration (Barki & Pinsonneault, 2005). Attention to the structures and archetypes that form patterns and culture aspects of an enterprise, as seen from a systems view, provides a basis for the consideration of complexity inherent in dynamic systems. Rouse (2005a) provides an extensive discussion of the relevance of traditional systems-inspired perspectives and engineering domains to enterprise studies. Insights from strategic management research and theories along with perspectives and elements of cognitive engineering tools and models are presented here to provide the appropriate contextual considerations.

2.2 Definition of Transformation

Academic research, as well as common knowledge in many domains, contains several definitions of what transformation is or is not. Many of those definitions are valid and applicable to research that will model and measure the changes within enterprises. For the purposes of this dissertation, certain boundaries are set, delineated by attributes that limit the scope of study to a certain kind of transformation. That scope is limited to include only those enterprise-wide changes that have an effect on the behavior of a large majority of enterprise members. For this thesis, we will refer to concepts of "archetypes", "deep structure" and generally "culture change" in order to understand this limitation. The fundamental notion is one of changes that impact the way internal enterprise members and the external constituencies, such as investors, customers, partners, and vendors view and understand the enterprise. This could include changing the way an enterprise conducts its operations. It could include changing what is sold and/or to whom it is sold. This could involve simply changing the way an enterprise sees itself and *how* it goes about executing on the same or similar strategies as before the transformation.

One of the foundation theories that has been drawn from in multiple domains that explicitly focused on the notion of large scale change and its inherent difficulties within groups, was espoused by Lewin (1947; 1951) in his theories about group dynamics. Although Lewin's focus was not organizations, per se, his theories about the complexities of group interactions and the evolution of group dynamics have been used as guiding frameworks for many social scientists in multiple fields. The fundamental concept was that of unfreezing, moving internal aspects, and then re-freezing. This method is based

on the understanding that any evolved group develops norms, rules and guiding principles to function effectively. In order to radically alter the focus of the group and its behavior, and thus the behavior of its individual members, an "unfreezing" of the established norms, rules and beliefs must first happen. Then, movement and change towards a new structure or belief system can develop or be instigated, but it must be re-frozen once established in order to take full effect within the functioning and ultimate success of the group.

A business-focused example with which this author is familiar is the transformation of Reebok (Garcia, 2005). The company never changed from selling shoes, and although it may have added development of apparel as product extensions, the fundamental market and strategy was the same – sell many shoes to many people. What changed during the turnaround, or transformation? The *way* that the business was run. The product development and marketing foci were improved. This externally-focused change necessitated a change internally in the way teams worked together, across disciplines and how they used the information available to them. In addition, there was an infusion of energy, morale and motivation by the management. Again, this did not change *what* the company did, but it dramatically altered the *way* the employees functioned, behaved and the overall sense of the culture. This in turn changed the way the company was perceived by its external constituencies. A quote by the CEO explains the essence of the transformation: "I think our turnaround is a result of not so much what we've done positively, but what we stopped doing negatively" (Fireman, 2005).

Much of the validity and robustness of any thesis research is dependent on the clarity of the underlying concepts. There has been much confusion and overlapping of

concepts in defining and studying change or transformation. This current research will draw on existing literature that defines transformation in a well-bounded way, and at a defined levels of analysis. Vocabulary about transformation is on one hand rich, in that many studies refer to transformation situations with a plethora of different terms. Although this can have the effect of reinforcing the applicability of such studies to many areas and disciplines, it can also have the negative effect of eliciting blurred concepts of what is meant. Some of the most widely used terms that refer to the same concept of transformation referred to here, and which may be used interchangeably throughout this work are strategic change, revolutionary change, strategic reorientation, and large-scale change. They are similar in their concept of the scope of change and in referring to situations in which particular enterprise attributes are shifted or completely re-invented. Table 2.1 provides a list of the foundation works upon which the descriptions here are based.

Table 2.1 – Definition of Transformation Literature

Author	Year	Words used to describe transformation
Amis Slack and Hinings	2004	Change in archetypes – from Greenwood and Hinings.
Blumenthal and Haspeslagh	1994	Behavior changes indicate transformation.
Carley	1997	Strategic reorientation.
Gersick	1991	Deep structure change.
Greenwood and Hinings	1988	Changes in archetypes. Dramatic, strategic change. Archetypes defined as structures and systems.
Lewin	1947	Unfreeze-move-freeze
Miller and Friesen	1980	Momentum and revolution
Nadler and Tushman	1989	Large scale change. Multiple transitions. Reorientation and recreation (anticipatory vs. reactive).
Pascale, Millemann, Gioja	1997	Strategy changes. Shift in organization capability.
Rouse	2005	Routine vs. episodic change. Concept of continuity of enterprise.
Tushman and Romanelli	1985	Revolutionary change. Periods of convergence and revolutionary/disequilibrium times.

2.2.1 Foundational Change Literature

To name a few, organizational researchers have studied and developed theories about: organizational development (Cummings & Worley, 2001), evolutionary change (Nelson & Winter, 1982; Tushman & Rosenkopf, 1992), continuous change (Brown & Eisenhardt, 1997), organizational transformation (Greenwood & Hinings, 1987), strategic change (Hinings & Greenwood, 1988; Rajagopalan & Spreitzer, 1996), planned change (Porras & Silvers, 1991), second order versus first order change (Watzawick, Weakland, & Frisch, 1974), and adaptation and selection (Hannan & Freeman, 1977; Miller &

Friesen, 1980). The distinction between first and second order change (Watzawick et al., 1974), or the use of the term "organizational transformation" provide the best categorizations of this difference (for a good discussion of this topic and its relation to second order change, see (Nutt & Backoff, 1997)). The former constructs help to distinguish between changes that may take place in an organization that result in different internal processes or incremental changes in strategy or structure (first order change) or those that fundamentally alter the framework, structure, culture and general perspective of the organization throughout (second order change).

Research on continuous change within a system (Brown et al., 1997), though important, is not analogous to research that analyzes major shocks to a system or enterprise and thus transforms the very nature of the structure and strategy of that enterprise (Hinings et al., 1988; Mohrman, Mohrman, Ledford, Cummings, & Lawler, 1989; Nutt et al., 1997; Rouse, 2005b). We can also call on the term "deep structure" as one illustrative way to conceptualize and provide attributes to measure. Gersick (1991), in her Punctuated Equilibrium work defines this term:

> Systems with deep structure share two characteristics: (1) they have differentiated parts and (2) the units that compose them "work": they exchange resources with the environment in ways that maintain – and are controlled by – this differentiation. Deep structure is the set of fundamental "choices" a *system* (italics added) has made of: (1) the basic parts into which its units will be organized and (2) the basic activity patterns that will maintain its existence.

Therefore, the concept of transformation is one of disruption of that system and its deep structure. In periods of revolutionary change (transformation) "…the deep structure

must first be dismantled, leaving the system temporarily disorganized, in order for any fundamental changes to be accomplished" (Gersick, 1991). Nonetheless, the concept of deep structure may still leave ambiguity and does not provide measurable metrics, and so further explication is needed here. Therefore, building from the framework of "deep structure", we can then provide more detail about the attributes and specific structural, and strategic elements of an enterprise that must be re-created, re-conceptualized or in another significant way transformed in order to define a "deep structure" enterprise transformation.

Another way to conceptualize the scope of transformation of interest here is to describe changes in certain enterprise *attributes* that imply a transformation. For the purposes of this present work, the following are attributes in which major shifts determine whether an enterprise has endured or is currently going through a transformation:

- Behavior change – across majority of enterprise members
- Work process changes – across majority of members
- Structure change, but only if coupled with one of the above measures/metrics
- Strategic direction change – new products, new markets, new focus
- Culture change – includes pieces of all the above (although not necessarily inclusion of major structural change)

More detailed definition and description of culture is included below.

We can also describe what kinds of changes, though often referred to as transformation, are *not* included in the description and scope of this study:

- Incremental business process improvement
- Continuous change implemented as part of ongoing strategy and culture
- Extensions of current product or market focus

- Reorganization without any strategic connection or goal-focused motivator

Table 2.2 provides a summary of the relevant research that forms the background of the theoretical understanding of transformation, as it is treated in this current work. Appendix A provides an in depth discussion of each piece included in the table. All of the work called on here relates to the idea that transformation, within an organization or enterprise, disrupts the current state of being. In addition, many of the pieces included in the table below provide a theoretical foundation for measuring the internal reactions and outcomes of large-scale transformation. There are ideas about what distinguishes these kinds of changes from others, such as the Rouse (2005b) contention that continuity of the enterprise is fundamental to describing and thus studying transformation, rather than dissolution of an entity. Other research, such as the Brown and Eisenhardt notion (Brown et al., 1997) of continuous change, provide us with insight into the kinds of changes we are specifically not including in the present study.

This scope of transformation also clearly relates to the use of a systems perspective, as based in many fields of study (see Figure 1.1 above). The systems perspective and a macro-organizational perspective (such as is the focus of organization theory and strategy research) both add to the interdisciplinary nature of the present work, and use a strategic, revolutionary and system-wide definition of transformation versus other incremental, or small changes. Social considerations are also a part of this large-scale type of change, allowing us to continue the interconnected focus on multiple domains of study.

Table 2.2: Foundational Change Research

Author	Year	Focus of work
Blumenthal and Haspelagh	1994	Focus on content of change. Behavior must change during change situations.
Brown and Eisenhardt	1997	Continuous change.
Christensen	1997	Disruptive technologies, external shock to organization.
Cummings and Worley	2001	Organization development.
Dacin, Goodstein & Scott	2002	Institutionalism-focused perspective on change.
Gersick	1991	Deep structure change.
Greiner	1972	General growth and adaptation.
Hinings and Greenwood	1988	Archetypes and changes within and between them.
Kwun and Cho	2001	Industry effects of change.
Miller and Freisen	1980	Momentum and revolution, related to adaptation and growth as well as change.
Nelson and Winter	1982	Evolutionary change.
Pascale, Milleman and Gioja		Revitalization in the midst of periods of tumult and change.
Porras and Silvers	1991	Planned change.
Rouse	2005	Categorization of transformation situations, based on three dimensions – ends, means, and scope.
Tushman and Romanelli	1985	Punctuated equilibrium.

2.3 Misalignment Forces[1]

Regardless of how or why the decision-makers of an enterprise acknowledge the need to transform, there are forces that cause (or portend) some kind of loss in value in what the enterprise does. This can also be characterized as a misalignment between the

[1] I am indebted to Bruce Chew for suggesting the use of this terminology.

enterprise and its environment. These forces can evolve over time or can be catalyzed by a particular disruptive event. Additionally, there can be reactive or proactive action in response to these forces. Decision makers may foresee the significant impact of forces that evolve over time, such as changes in consumer buying patterns, or tastes. Conversely, forces may arise quickly or a disruptive event may occur after which management may realize the value-eroding impact on the enterprise and instigate transformation in reaction. This latter situation is more common to periods of transformation and the recognition of the need for it within an individual enterprise.

There are four major categories into which forces causing the need to transform can be grouped. The grouping into these categories serves to create a typology of misalignment forces, as a first step in creating an overall model of transformation. The basic elements of what categorizes the misalignment forces into different sections are where they originate – internal or external to the enterprise – and whether they tend to happen in an evolutionary or revolutionary way. Table 2.3 presents the basic four groupings, followed here by a more detailed explanation of the ways in which each misalignment force affects an enterprise, causing its need to transform. Note the fifth category comes from distinguishing between 2 different kinds of technology-initiated changes.

Table 2.3 – Misalignment Forces Typology

Force	Evolutionary or revolutionary	Internal vs. external (origin of force)	Example
Technology: Production innovation	Revolutionary	Either	Business process reengineering, automated manufacturing techniques
Technology: Product/service Innovation	Either – more often revolutionary	Either	Disruptive technology – PCs, digital camera, open source software
Regulatory	Revolutionary	External	EPA regulations, Glass-Steagall Repeal
Market: consumer, competitor or factor price changes	Evolutionary	External	Target, Wal-Mart, 'Big Box ' retail stores
Financial crisis	Evolutionary	Internal	Bankruptcy – Kmart, Party City

The categorization scheme developed in this paper functions along environmental dimensions (Meyer, 1982). The majority of misalignment forces, whether evolutionary or revolutionary, fall into four categories: technological changes, regulatory changes, market structure changes, and financial pressures. Many authors have similarly characterized major environmental forces that cause transformation (Nadler & Tushman, 1989). Also, many of the interviews conducted in the data collection process for this research revealed similar categories of forces causing the need for transformation as perceived by top-level managers in a variety of industries. (Garrison, 2005; Lesser, 2005; Steele, 2005).

The most widely researched misalignment force is technology. The effects that technological innovations can have on the value of an enterprise's offerings, or on its overall operational model have been studied from several different perspectives, providing us today with a fairly comprehensive understanding of the importance of this

dynamic force. Schumpeter (1942) catalyzed much of this work in his definitive works on the process of creative destruction. Schumpeter was one of the first scholars to appropriately identify technological innovation and the process by which it is developed to be a central growth factor in a competitive economic environment. The notion of disequilibria that comes from this line of thought has enumerated several key tenets of the concept that technology and the process of innovation can lead to the need for enterprises to transform the ways in which they pursue their goals as well as the outcomes that they produce.

The table included below, Table 2.4, is a summary of the academic research used to develop the Misalignment Forces typology. All of this research is detailed in Appendix A, which includes a discussion of each piece's descriptions of the relevant forces that cause the need for massive enterprise transformation. The resulting misalignment forces typology, as presented above is also included as an integral part of the complete Transformation Model presented in Chapter 3. The foundation research discussed here, as well as primary research conducted by this author and described in Appendix A, provide the basis for the creation of the typology and the understanding that there are several categories of environmental and internal enterprise factors that lead to the need for disruptive, uncertain transformation.

Table 2.4: Misalignment Forces Research

Author	Year	Concepts
Baum	1990	Changes in the prices of inputs and production materials.
Christensen	1997	Full explication of technological innovations, progress and effect on established and new firms. Notion of disruptive technologies.
Gersick	1991	Deep structure change, as continuation of Punctuated Equilibrium theory. Leadership and technology as forces driving change.
Hill and Rothaermel	2003	Connection between technological discontinuities and internal firm assets in managing change.
Jacobson	1992	Production versus output technology changes and innovations.
Kelly and Amburgey	1991	Focus on legislative changes ad financial influences on need for transformation. Also include market forces consideration.
Kwun and Cho	2001	Effect of regulatory changes on industry and organizations within it to react and adapt.
McGahan	2004	Includes typology of different kinds of environmental forces that cause major change - regulatory, market, technology and financial forces all includes.
Meyer	1982	Environmental jolts as they affect the functioning of organizations and their industry. Reactive attention to need for change.
Miller and Friesen	1980	Causes of need for changes - shifts in power and performance deteriorations.
Tripsas	1997	Effect of complementary assets on ability to face technological discontinuities.
Tushman and Anderson	1986	Massive change as related to process of production and end result of production.
Tushman and Romanelli	1985	First major punctuated equilibrium piece about nature of massive organizational change and forces that bring it about - include leadership, technology and organic/evolutionary forces.

2.4 Resistance to Change Characteristics

One of the fundamental questions that has dominated the literature on organizational change and transformation is why enterprises consistently resist change. Much has been written about and studied in terms of the general organizational forces that cause inertia, even in the face of changing environmental circumstances. The literature on firm characteristics, including concepts of enterprise learning, and resistance to change is reviewed here. It is important to note that research on organizational learning and cognition is also relevant in the case of enterprise transformation, especially as studied through the interdisciplinary lens of management and cognitive engineering, as in this dissertation. As will be discussed below, much of the literature on learning is directly relatable to notions of social and shared cognition, as well as to the issue of resistance to change. It is this author's belief that different types of learning environments produce situations that are more or less amenable to recognition of the need for transformation. Although this dissertation will not measure the learning and firm characteristics that are part of the overall model of transformation, it is important to explicate their proposed relationships to processes and outcomes of transformation for future empirical study.

Several theoretical studies have outlined the reasons for resistance to change, most notably population ecology pieces (Hannan et al., 1977; Hannan & Freeman, 1984; Meyer, 1982), and the studies emanating from that stream. The current understanding is that many of the features that create successful organizations under a particular set of environmental circumstances can create inertia internally and increase resistance to change when those environmental circumstances shift. In essence, success is often the

greatest source of enterprise inertia and resistance to change (Tushman & Smith, 2002). Several pieces deserve specific mention here, as related to the typology presented on the misalignment forces, and the questions of decision makers' recognition of this need.

Table 2.5 below presents the fundamental research that has studied internal organizational characteristics and elements that can exacerbate resistance to necessary change. As with other theoretical domains, Appendix A provides more background and discussion for each piece, delving into the specific characteristics studied. Because these proposed moderators in the relationship between transformation processes and outcomes are not measured in the current research, it is sufficient at this point to describe the general categories of resistance factors. This is an area that has received much theoretical attention in multiple domains, as has been described with the monikers of resistance to change, and organizational inertia, and that clearly bridges multiple domains. If we refer back to Figure 1.1, we can see that many of the scholarly sub-fields that address these inertial or resistance phenomena are related to management and organizational studies, as well as to the cognitive engineering domains. The latter category of research calls on behavioral understanding of humans and groups, many of the elements of which are included in the studies discussed here that relate to why enterprises and their decision makers resist change that in retrospect was clearly necessary.

Table 2.5: Resistance to Change Research

Author	Year	Resistance to Change Characteristics Discussed
Argyris	1976	Learning systems - single vs. double loop learning
Boeker	1997	CEO attributes - succession, tenure, diversity of top management team
Hannan and Freeman	1977	Inertial forces that create success/population membership
March	1991	Explorative vs. exploitative learning
Meyer	1982	Structures, slack resources
Morrison and Milliken	2000	Organizational silence
Nadler and Tushman	1997	Leadership qualities, interdependence
Teece	1986	Internal assets - specialized vs. generalized complementary assets
Tripsas and Ganetti	2000	Managerial cognition, adaptive intelligence
Tushman and Anderson	1986	Internal organizational resources
Tushman and O'Reilly	1996	Internal attributes - control and reward systems
Tushman and Smith	2002	Success - in strategy, structure, etc. Ambidexterity necessary
Hill and Rothaermel	2003	Complementary assets

2.5 Culture

The discussions thus far have all included different elements of organizational culture. The structures, hierarchy and explicit rules that govern an enterprise are all part of what makes up its culture. However, we often refer to more qualitative or less easily measured aspects of organizational life when discussing the notions of culture – considerations such as unspoken norms and rules, belief systems and values have all been described as being fundamental to the kind of culture that determines much of the

"personality" of an enterprise. The subsequent section on organizational learning is intricately related to the notion of culture in that we cannot discuss transformation of an enterprise without considering the change to its culture and much of this level of change is either facilitated or hindered by an enterprise's learning system. However, one of the confusions when discussing culture, either in a national or organizational context, comes from often ambiguous definitions, so a short section clarifying the appropriate definition called on in this research is necessary here.

Schein (1984) provided some of the grounding work for subsequent culture studies and discussions. His definition is focused on the level of assumptions that develop within an organization and that work for extended periods of time, providing credibility and validity for the group in question. The assumptions he focuses on are those that are used to deal with issues of adaptation to the external world as well as internal integration. These assumptions create a sense of stability and continuity, which is necessary for the organization and its members. In times of large scale transformation, as defined above, it is clear that these assumptions and the stability that provides security and comfort to the enterprise members becomes disrupted and so the essence (assumptions) of the culture must be shifted and re-defined in order to provide stability and continuity in the future.

Further development of the idea of organizational culture and the (measurable) elements that make it up also relate directly to the notion of analyzing enterprises as systems. Attention to leadership decision making reveals the need to understand the elements of culture systemically, in order to measure the effects of decisions on the organization as a whole (Schein, 1996). This systemic view allows us to isolate decisions

and changes in particular parts of an enterprise, which have a more far-flung effect on the organization as a whole, based on the interrelationships of parts and the cultural elements that shift or change due to different change-focused decisions (Senge, 1990).

2.6 Organizational Learning

Organizational learning is a sub-field of research that has increasingly drawn the attention of scholars in both management as well as other fields, such as cognitive engineering, social cognition, and psychology. There are multiple considerations in thinking about learning as a supra-individual activity and process, and for the discussion of transformation, enterprise learning is related to many sub-aspects. How leadership of an enterprise recognizes the need for change, how the process is implemented and what kind of subsequent environment is created are all thought to be at least partially influenced by an organization's learning process. Because of these proposed relationships, as can also be seen in the Transformation Model (see Chapter 3), more background on the field is provided here as part of the consideration of resistance to change characteristics.

Building on extant theories of learning, Argyris proposed the concepts of single and double loop learning (Argyris, 1976). Single loop learning is a reinforcement of what an organization already does, in terms of how it scans the environment, how it innovates internally, how it looks for new opportunities, etc. Double loop learning, on the other extreme of a learning continuum, questions the very assumptions and foundations upon which the organization has structured itself. Questions include the kinds of markets in which one should compete, how processes are organized internally,

and relationships with outside partners or vendors. Argyris' contention is that this latter kind of learning enterprise will be more able to react to environmental shifts that cause misalignment and therefore the need for transformation.

Argyris' (1976) definition of learning is the detection and correction of errors. In turn, he defines any feature of knowledge that makes an action ineffective as an error. During very few times in an enterprise's growth are the needs for error detection and learning more valuable than leading up to and implementing major transformation. The double loop learning concept directly challenges decision makers to question their beliefs in *what* they do and *why* they do it. The level of error detection and correction in this kind of a learning system is at an assumption level, not an action level. These kinds of questions and the subsequent search for appropriate answers can instigate and drive successful change, certainly when there is a fit between the kinds of questions and the assumptions being challenged, and the changing needs of the context in which the enterprise exists.

Argyris also (1976) specifies the notion of resistance to change and the causes for it. In his view, cognitive impairment is actually the inability to recognize the need for transformation, even in the face of misalignment forces that may (obviously) hinder an enterprise from taking advantage of the value-driving concepts in its environment. Learning, and specifically double-loop learning, is one of the most successful ways to break out of that kind of resistance and overcome that level of cognitive impairment.

As part of the belief structure and values, the type of learning – single or double loop – that the majority of enterprise members employ in their tasks and search for answers, will moderate the relationships between transformation processes and outcomes.

This proposition can be seen in the transformation model presented in Chapter 3. Transformation (because of its inherent risks) provides a heightened need for potential success as a result of a learning process that questions accepted notions of "what we do", as an enterprise. In the long run, once double loop learning is part of an enterprise structure and belief system, it can facilitate a faster recognition process and implementation of successful transformation processes when the enterprise is faced with misalignment forces. In this way, it becomes not just a way to deal with episodic change, but also a way to avoid situations of resistance to change in the future, creating recursive relationships with both the recognition of the need for change and the way the transformation process is designed and implemented.

Senge's foundational book (Senge, 1990) on learning within organizations outlines several important points that are drawn on here and provide fodder for future research of the specific elements of change that are impacted by and in turn also impact learning within enterprises. The five disciplines, which he describes as being essential to productive learning in organizations, are: system thinking, personal mastery, mental models, building a shared vision, and team learning and dialogue. All of these elements are discussed in more detail within this current research. The guiding perspective of systems thinking is necessary for understanding the complexity of the impact of changes and forces in parts of the enterprise that then affect the other parts. The notions of mental models are closely related to culture, and in fact many of the same complements of mental models are those that define the culture of an organization. In addition, the leadership elements measured in this study include vision and elements of dialogue or communication.

The relevance of the notions of learning becomes obvious within the context of transformation, as we take a more fine-grained view of how organizations learn and the factors that influence their levels of learning. Analysis of individual parts allows for the final understanding of the integrated organization, or system under study. The parts that are included in the modeling here and that can be specifically related to learning include elements of the design of the transformation process and the ways in which those processes are executed. Analysis at this level includes both qualitative and quantitative measures – both soft and hard parts of the enterprise. Many of the "learning disabilities" (Senge, 1990) that are discussed by Senge can arguably be measured by studying the levels of different transformation process elements, such as plans, goals, and leadership factors (communication, vision, clarity, support).

Tripsas and Ganetti (2000) began the process of integrating notions of firm characteristics and learning in a study of how managerial cognition affects the adaptive intelligence of organizations. These authors discuss the connection between the history of an enterprise and its ability to learn, and therefore its ability to respond to necessary changes. They include consideration of the impact of an enterprise founder. Although this concept may not be as generalizable as other variables related to enterprise characteristics and learning, it helps to create an explicit recognition of the underlying culture and belief system. These authors succinctly connect the concepts of learning, inertia, resistance to change, and culture in a way that provides the model presented in this dissertation with some foundational elements upon which to build (see Transformation Model in Chapter 3). The existing belief structure, or predominant enterprise culture, can act as a strong inertial force, resisting necessary transformation,

even in the face of strong misalignment forces. It is necessary for the management (decision makers) to recognize not only the need for change, but also the internal learning system that may be resisting the needed change, in order for an enterprise to bring itself out of a situation of value erosion and regain a competitive position.

2.7 Decision-Making & Cognition

Decision making research has a long history in many disciplines (see Figure 1.1 for the overlaps among theoretical domains). Management scholars, from organization behavioral theorists to organizational theory and strategy researchers have studied the impact of organizational and environmental factors on the decisions of leaders. In addition, the nature of how decisions are made and their subsequent impact on the performance and outcomes of organizational decisions have garnered empirical attention. Psychologists, and subsequently cognitive engineers have also devoted much time and research to this area, bringing in additional methods to measure, model, and study the process of decision making and the cognitive elements that affect it. Decision making guides action, the commitment of resources, and the setting of strategy at the highest levels of enterprise management. Furthermore, cognition specific to strategic decisions isolates those choices that are specific to major changes and disruptive periods in the life of an enterprise.

In the development of the Transformation Model, the ways in which key enterprise decision makers arrive at their recognition of the need for change and the design of the transformation process is of importance. The cognitive elements are included in depth in the development of the process factors to be discussed below and

presented in the model in Chapter 3. Measuring these cognitive elements and the variables that affect them allows us to understand the reasons for either resistance to change and/or the inevitable recognition of it and implementation of this kind of disruptive process. Appendix A includes detailed discussion of foundation pieces in decision-making and their relevance to transformation situations. The table below, Table 2.6, includes a summary of these research pieces.

2.7.1 Socially-Shared Cognition

Eisenhardt (1992), in a review of decision making theory, calls for research that connects both the cognitive knowledge and the social influences that have been studied in the management arena. Certainly, situations of transformation can provide settings of high uncertainty and ambiguity, and examining some of the decision-making aspects of these processes can lend insight into not only the phenomenon of transformation, but also decision-making understanding in general. The social cognition literature that lends additional insight is based in psychology, anthropology, engineering, and other disciplines, but has not been explicitly applied to enterprise management phenomena. It is the intention of this dissertation to begin to apply some of the research that has increased understanding of socially shared cognition to situations of enterprise transformation, and in the longer run to overall enterprise management decisions.

In an attempt to gather much of the literature that can be related to concepts of socially shared cognition, Resnick, Levine & Teasley (1991) compiled an edited volume with works by scholars in a number of fields – anthropology, linguistics, biology, and psychology, among others. The focus in this early line of research is to challenge traditional views that cognition is an individual phenomenon. Cognitive researchers in

all fields have evolved from this original theoretical foundation to include consideration of the impact of immediate social contexts on cognition and individual interpretation. However, as Resnick (1991) points out in her introduction, there has not been much attention to a wider social and cultural context and the influence on individual and socially-shared cognition. The two areas of most noticeable absence in this compilation are management and cognitive engineering. This dissertation makes a contribution to both literature streams by integrating their theoretical foundations with each other and by applying central ideas from socially-shared cognition work to the context of organizations and transformation (see Figure 1.1 above).

Table 2.6 includes a listing of the studies that have extended individual level cognitive knowledge to more social situations. More extensive discussion of social cognition research can also be found in Appendix A. The relevance to issues of enterprise transformation is clear, as the decisions and cognition to be explored are not only at the individual level (for example of the leaders of the enterprise), but also at the level of the groups included in the organization, and/or the enterprise as a whole. These studies enhance the theoretical validity of our understanding of social cognition, especially in times of change and instability.

Table 2.6: Decision Making and Cognition Research

Author	Year	Cognition and decision making characteristics, etc.
Carley	1997	Social cognition as social phenomenon. Learning resides in connections.
Carley and Hill	1999	Examine cognition and decision making at distributed, social level.
Carley, Prietula, and Lin	1998	Social cognition effects on performance. Match between design and environment.
Cohen, March and Olsen	1972	Garbage can model of decision making. Organizational choice is solutions looking for problems. Limited rationality.
Cyert and March	1963	Consideration of goals and time in decision-making processes. Inconsistency among individuals.
Eisenhardt	1992	Guides action, sets strategy. Focus on infrequent, life-affecting decisions.
Hollnagel	1993	Cognition influenced by context and thus determines individual control.
Hutchins	1991	Social coordination relate to interpretation. Widely distributed memory.
Lave	1991	Learning related to socially shared cognition.
Levine and Moreland	1991	Social knowledge and shared task understanding fundamental. Inclusion of culture descriptions.
March and Simon	1958	Cognitive limits on rationality, given certain influences, such as goal formation.
Resnick, Levine and Teasley	1991	Use individual level cognition theories to apply to social, group situations.

The Transformation Model presented in Chapter 3 includes learning as both a moderator variable in the relationship between transformation process and outcomes, and as a feedback driven factor that can subsequently affect the process and recognition of transformation as an antecedent. The single and double loop learning concepts discussed above (Argyris, 1976) can be augmented by the theoretical notions of socially situated learning and the impact of the immediate, historical and social context to learning.

Furthermore, if we use the notions of an organization as a social entity and its culture as influencing the belief system of its members, we have yet more connections between the concepts of socially shared learning and enterprise learning, culture and transformation.

2.8 Transformation Process Factors

Many studies in various disciplines have developed frameworks around the variables that are important in large-scale change processes. Many of these works, mostly conceptual, are focused on individual aspects, such as leadership, communication, and other qualitative variables necessary in uncertain times (company buy-in and participation, for example). There also have been several empirical studies that have isolated one or two of the variables considered important in a transformation process and measured their impact on various outcomes (see relevant references in the more detailed discussion below). This research has provided a solid foundation upon which this present study is built in order to model and test a comprehensive view of transformation process variables. The variables included in the model developed for this study, and tested in the survey are drawn from several other models, used as guiding metaphors or foundation pieces.

The major gap that this author sees in the change process literature to date is the lack of measurable variables included in models of large-scale, dynamic processes. Furthermore, many of the previously proposed variables have not been empirically tested and linked to relevant outcomes. The contribution of this study comes from the original model developed, and the subsequent empirical testing of several process variables, as they are related to transformation outcomes. The literature that has created a solid base to

draw from is reviewed below. Several existing models are extended in order to create a new integrated model. Of particular importance, in addition to the overall contribution to the transformation literature in several domains, is the inclusion of cognitive engineering control aspects, drawn from a model produced by Hollnagel (1993). This model and the field in which it resides is not one that is frequently drawn on for management or organization studies, but the applicability of the concepts is evident.

One particular multi-level approach that is relevant to the building of the model (presented in Chapter 3) is that of Burgelman (1996). His model is based on two major dimensions of change processes that act as generative mechanisms: organizational level changes, based at the business unit and corporate level; and management level changes, based at the top and middle of the enterprise and focused on operational decisions and changes. This is applicable to the model developed here, which focuses on several of the variables at a decision maker level, but hypothesizes about the relationships and impact those decisions have at an organizational level. In addition, Burgelman clearly defines what he means by "processes" to be patterns of activities of differentially positioned managers that together produce outcomes such as decisions to exit a strategic business.

The focus of the model in the present study is on elements that are implemented during the transformation process within a complex dynamic enterprise. Many of these elements are related to the level of control that enterprise members perceive they have over their decisions and the direction of the larger organization. Because transformations are typically very uncertain and risky times, there is an increased level of anxiety that is often experienced during the process. Furthermore, as has been discussed here, resistance to change at both the organizational and individual level is a natural and very

strong force. Therefore, key leaders and decision makers must implement the kind of processes and internal environments that minimize the negative effects of uncertainty and resistance to change, and at the same time help advance the goals and changes on many levels that are necessary for a successful transformation.

2.8.1 Process Factors Research

Chapter 3 explicates in depth the factors that are included in the overall Transformation Model, as well as the internal process factors model. Many of the variables that have been chosen to measure in this research are based on integration from previous theories and empirical studies. This current section provides a foundation from which subsequent conceptual development builds, in terms of choosing measurable and hypothesized factors that play a significant role in predicting and contributing to the success of large-scale transformations.

Table 2.7 below summarizes the change process studies, both conceptual and empirical, that are discussed here, showing which ones include various transformation process variables. The table is presented in two parts. The first part includes those factors that are specifically modeled here in the process model of transformation, as part of the overall Transformation Model. The second part includes additional variables that are present in many of the studies discussed, though not included as measurable components in the final process model developed below. Many of the authors referred to here discuss concepts of important variables that a change process must include in order to *overcome* resistance to change and internal enterprise inertia. All the studies included in this review are based on an underlying definition and scope of transformation or

change that is comparable to the one used in this dissertation. More detailed description of these studies is included in Appendix A.

The Hollnagel (1993) work is not included in the table here, though initial discussion of it is in Appendix A. The reason is that the current research has used this work as the basis for inclusion of cognitive and control factors in the modeling and measuring of transformation process factors, though the original research does not apply it in this way. All of the other studies included here specifically discuss the variables and elements inherent in large scale change processes. More detail on Hollnagel's model is included in the next chapter.

Though valuable and necessary, most of the factors of transformation processes mentioned in the research below have not been explicitly measured. Much of this lack of systematic modeling and measurement is in part due to an ambiguous understanding of words used to describe transformation process variables. The intention here is to move beyond this tradition, by including more actionable variables, such as the level of control perceived by enterprise members, and the ways in which that control is reached. Incorporating research from cognitive engineering and social cognition provides some of the more measurable components and expands our understanding of transformation processes, culture, belief systems, leadership, and communication. By more explicitly modeling and measuring these variables, the relationships between them, and enterprise level outcomes, our knowledge of these uncertain and dynamic periods increases, and thus our design and implementation of necessary transformations will ideally improve.

Table 2.7: Transformation Process Research
Part A: Studies With Variables Included in the Present Study

Authors	Year	Vision	Leadership	Timing/ Pace	Goals	Clarity	Control	Cognition	Plans
Amis, et al.	2004			X					X
Argyris	1976			X	X				
Bartunek, et al.	1996	X	X					X	
Beer and Nhoria	2000		X		X				
Beer, et al.	1990		X						X
Burgelman	1996		X					X	
Carley	1997								
Denis, et al.	2001		X						
Gersick	1994			X					
Huy	2001		X		X				X
Isabella	1990		X					X	
Kotter	1996	X	X		X	X			X
Kwun & Cho	2001		X	X					
Lewin	1947					X		X	X
Majchrzak & Wang	1996		X		X	X			
Mento, et al.	2002								
Morrison & Milliken	2000		X					X	
Nadler & Tushman	1989	X	X			X			
Nadler & Tushman	1990	X	X		X		X		
Novelli, et al.	1995		X			X	X		
Nutt & Backoff	1997	X	X						

Authors	Year	Vision	Leadership	Timing/ Pace	Goals	Clarity	Control	Cognition	Plans
Pascale, et al.	1997		X						
Pettigrew	1987			X					
Rajagopalan & Spreitzer	1996		X				X	X	
Van de Ven & Poole	1995								

Table 2.7: Transformation Process Research
Part B: Studies With Variables Not Included in the Present Study

Authors	Year	Employee involvement	Multi-stage	Alignment with business	Long term focus	Learning	Internal institutionaliza-tion
Amis, et al.	2004		X				
Argyris	1976		X		X		X
Bartunek, et al.	1996	X					
Beer and Nhoria	2000						
Beer, et al.	1990		X	X			X
Burgelman	1996	X		X		X	
Carley	1997						
Denis, et al.	2001			X			X
Gersick	1994						
Huy	2001						
Isabella	1990						X
Kotter	1996	X					
Kwun & Cho	2001	X	X				
Lewin	1947	X					X
Majchrzak & Wang	1996						
Mento, et al.	2002						X
Morrison & Milliken	2000	X				X	
Nadler & Tushman	1989	X	X	X			

Authors	Year	Employee involvement	Multi-stage	Alignment with business	Long term focus	Learning	Internal institutionaliza-tion
Nadler & Tushman	1990				X		X
Novelli, et al.	1995	X					
Nutt & Backoff	1997	X					X
Pascale, et al.	1997	X				X	
Pettigrew	1987			X	X		
Rajagopalan & Spreitzer	1996					X	
Van de Ven & Poole	1995						X

2.9 Conclusion

This chapter and its associated Appendix (A) have detailed the theoretical domains upon which the current research is based. This is the necessary first step in establishing an intellectual/scholarly tradition upon which to build and contribute. The intention is to fill in several gaps in the current research on transformation. Although we are building upon multiple research streams, nonetheless there exist holes in our understanding of disruptive, uncertain, and large-scale enterprise transformation situations. The goal is not only to fill in some of these gaps in current knowledge, but also to measure the theorized relationships between many important factors in these situations. Clearer understanding allows us to better design and manage often-unsuccessful change processes.

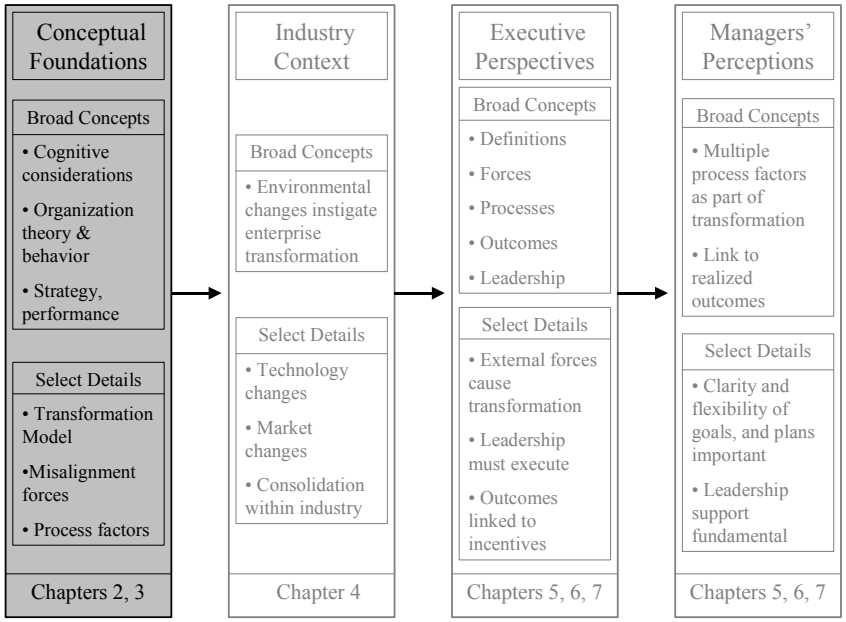
The subsequent chapter continues the discussion of extant theory, but explicitly builds on the research. An integrated Transformation Model is developed, and within that model, a more specific archetype of transformation processes is proposed. We then explore the empirical research design employed here to test and evaluate the hypothesized relationships in order to gain evidence of what helps transformations succeed or fail.

CHAPTER 3 – ENTERPRISE TRANSFORMATION MODEL AND HYPOTHESES

The initial discussion of process factors of enterprise transformation in Chapter 2 provides a background of existing knowledge and highlights many of the issues that should be considered in explicating a comprehensive model of large-scale change. This chapter extends that discussion to focus on factors that provide the necessary elements upon which to build a larger, integrated model that can then be tested with appropriate qualitative and quantitative data analyses. As previously mentioned, the Transformation Model includes several factors that have been previously defined or studied, though we build upon extant theory and integrate several streams of thought to arrive at the overall model. This current study is focused on detailing the factors that are specific to the internal organizational process of enterprise transformation. Thus, we include more detailed discussion of a few frameworks used to define those factors and arrive at a detailed archetype of transformation processes, including variables that are then measured in the empirical analysis.

This chapter is split into several sections, focusing the discussion on various elements of the process model building blocks that contribute to the proposed factors in the final representation. The final Integrated Process Model presented below (part of the larger Transformation Model) is composed of an integration of salient parts of three other models found in the cognitive engineering and management literature. The three categories of factors are presented in subsections below, in order to provide an organized framework around the different categories of factors that are then included in the design of the research and the empirical and statistical analyses of the data collected. The

previously-developed models are used as inspiration and theoretical background to form a detailed process model of the measurable factors important to the success of large-scale enterprise transformation. The Thesis Flow Map is presented here, as in other chapters, illustrating that we are focusing on the conceptual foundations of the study in this chapter, as the unique transformation model and its elements are discussed and developed.



3.1 Leadership and Direction

In their definitive organizational change piece, Nadler and Tushman (1989) outline not only the differentiation between transformation and incremental change, but also discuss several of the internal process factors that are instrumental to successful transformations. The overriding theme for their consideration of process factors is that congruence within an organization should be maintained while implementing large-scale change. The transformation process research table above (Table 2.7) shows the various elements included by Nadler and Tushman in their explication of important

transformation process factors. These variables include vision, energy, leadership, planning, and centrality.

The variables described and the scope of change categorized by Nadler and Tushman's 2x2 matrix (included below, Figure 3.1) lead to their model of transformation, with specific attention to many of the mechanisms by which it is implemented successfully. The distinctions they identify between types of change help guide the scope of transformation examined in the current research to be "re-creations" or "re-orientations". Retail industry shifts over the past few decades have been most relevant to situations of re-creations. Often, environmental or market-driven forces catalyze reactive changes on the part of the enterprise in question – a situation endemic to the retail industry changes in recent years. There is an implicit temporal element in the Nadler and Tushman change model that captures some of the sequencing and iterative elements of the Transformation Model presented below. These authors contend that proactive change can often be less risky and more successful because there is a temporal advantage, which is similar to the Amis et al. (2004) finding that speed early in the process of implementing transformation may not benefit the enterprise. Furthermore, the notion of reactive versus proactive change has been discussed above, in relation to concerns about resistance to change characteristics and recognition of the need for change. (See Section 2.4: Resistance to Change Characteristics in Chapter 2).

	Incremental	Strategic
Anticipatory	Tuning	Re-orientation
Reactive	Adaptation	Re-creation

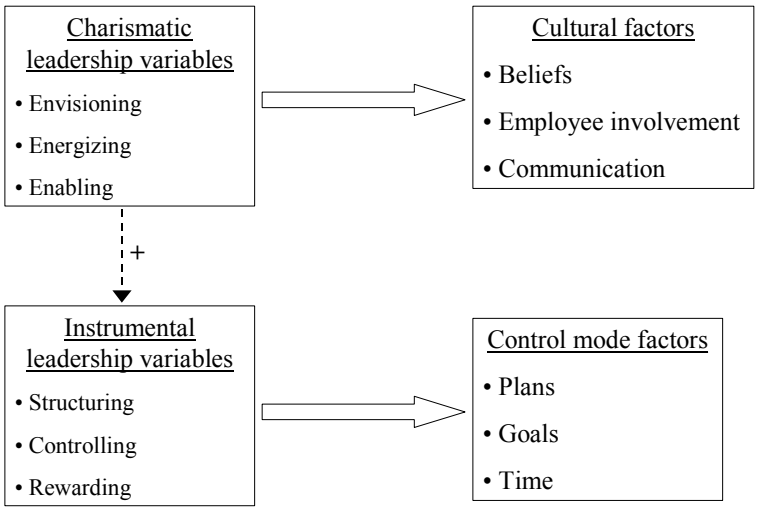
Figure 3.1: Types of Organizational Changes
From Nadler and Tushman 1990

Nadler and Tushman's change model is based on an underlying organization archetype, which includes many characteristics that are shifted during transformations – informal structure and process, formal structure, work, and people. These elements are included in the model specified here and measured in the data collection methods and analysis. The concept of culture, or belief systems is also included in this conception, through the discussion and analysis of informal processes, and different levels within and external to the enterprise that provide contextual considerations for the changes.

A subsequent article by these authors (Nadler & Tushman, 1990) develops in more detail the leadership aspects that are fundamental to enterprise transformations, identifying two primary kinds of leadership behavior. Their description of a "charismatic" leader drives some of the activities during a transformation process and in the sustained operations of an organization. Three aspects of behavior – envisioning, energizing and enabling – make up a charismatic leader, all of which are focused on what is needed to support the enterprise through a dramatic shift. These elements of a charismatic leader are necessary, but not sufficient conditions to bring a company through dramatic change. The second level of leadership is "instrumental". Nadler and Tushman describe this aspect of leadership as one that ensures commitment over time with the actions and direction affected by the charismatic leadership. This instrumental portion of leadership is more focused on actionable qualities, such as structuring,

controlling, and rewarding. In addition, the authors emphasize the point that the leadership of change needs to be institutionalized within the enterprise in order to affect the changes and implement the kinds of belief shifts for the transformation to be successful.

The leadership discussion in the Nadler and Tushman pieces (1989, 1990) approaches the idea of framing the attributes of learning in a measurable way. Furthermore, there is a distinct connection to some of the other process factors to be discussed below in terms of the control modes needed for successful transformation. The gap filled in the current research is specific to the explication of action-orientated behaviors that emanate from instrumental leadership. Specifying defined factors of leadership that can be measured, and combining them with some of the skills that emerge from using the control mode factors provides us with a more comprehensive view of multiple transformation process factors. These factors can then be analyzed as to how they impact the outcomes and success of the transformation at an enterprise level. Figure 3.2 shows the elements of the two kinds of leadership described by Nadler and Tushman and how they relate to the transformation process factors discussed here and included in the transformation model below.



Adapted from Nadler and Tushman (1989 & 1990)

Figure 3.2: Leadership and Decision Making Variables

The boxes on the left represent the factors of the two types of control that Nadler and Tushman described in their work. The connection between these two boxes (positive directional relationship) has been added here. Also, the relationship and explicit connection to both cultural and control mode factors has been added here, though it is not far a-field from what Nadler and Tushman described and discussed in their original model development. For example, one of the key variables of instrumental leadership is controlling. Although in this context control refer to economic rewards and incentives, as well as cultural and informal aspects of the enterprise, the underlying need for control and the ability to change, influence, and thus measure it is an important overlap with notions of control developed by Hollnagel (1993), to be discussed at length below. The fact that control as a concept comes up repeatedly in several literature streams reveals its importance in the model. Furthermore, actionable measurement of concepts of control is necessary to capture different levels and the impact they have on outcomes.

3.2 Cognition and Learning

In their review of major organizational change research, Rajagopalan and Spreitzer (1996) developed a model that also has much relevance to the explication of change process factors. The scope and definition of change upon which they base their work is explicitly defined as a change in form, quality or state over time in an organization's alignment with its external environment. The authors group change literature into three broad-based categories, according to the perspective through which different scholars view aspects of transformation. Their typology consists of the following lenses:

- Rational – a sequential process, planned based on firm objectives.
- Learning – an iterative process, combining small incremental changes.
- Cognitive – a more complex process involving interpretation by managers and both economic and non-economic outcomes.

Clearly, these are similar to the categories of import described in other sections of this dissertation (see the sections 2.6 and 2.7 in chapter 2 on learning, and decision-making and cognition). The last two perspectives (learning and cognition) are of most interest here. The cognitive lens discussed by these authors is somewhat divergent from the individual and social cognition research referred to above. Nonetheless, the explication of cognition as a factor to consider provides another layer of process variables to the enterprise transformation model presented below. The elements of cognition delineated by Rajagopalan and Spreitzer extend other work on cognition by considering additional aspects: the interpretive process, the economic and non-economic factors, and the idea of evolutionary change. Here it is maintained that cognitive

considerations are not only as valid, but perhaps even more so, during times of great upheaval, characterized by high levels of uncertainty and risk. During these times the need for clear and in-depth interpretations of the environment and the organization's capabilities is fundamental.

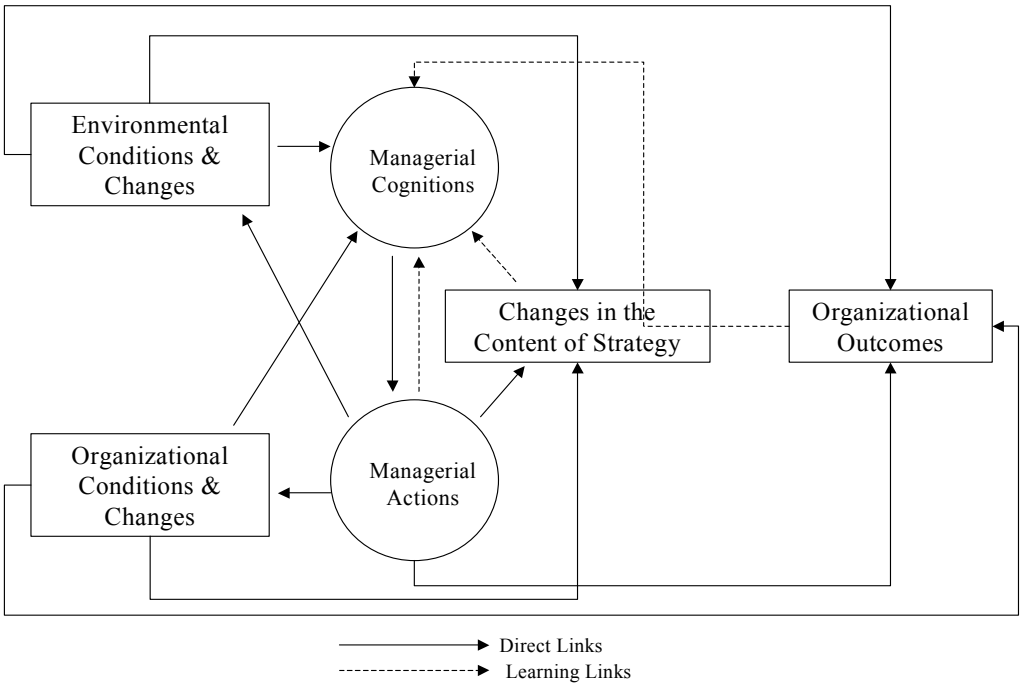
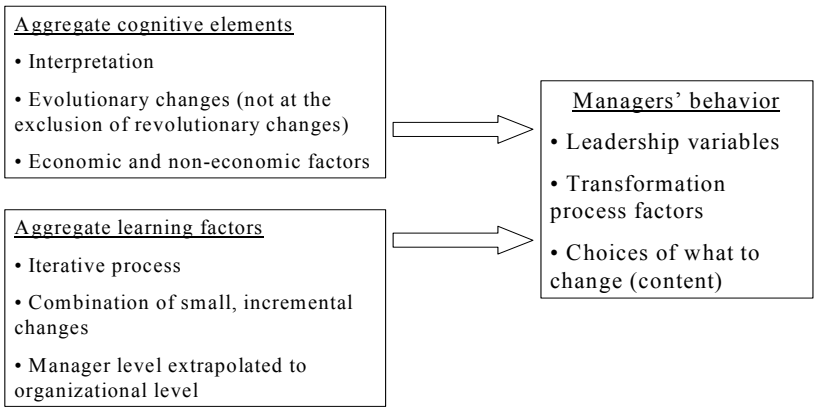


Figure 3.3 – Combined Model from Rajagopalan & Spreitzer (1996)

Rajagopalan and Spreitzer (1996) integrate the three foundation perspectives into one comprehensive model of strategic change (see Figure 3.3). Their attempt is to include cognitive, learning and rational elements into an overall, generalized model of the links and relationships between different pieces of the process of change. This serves as an example of integrating distinct models for the development of an overall transformation model and more detailed definition/explication of process factors here. The two most important portions of the Rajagopalan and Spreitzer model that best overlap with what is presented here are the facets of managerial cognition and managerial actions in the formation of organizational changes, and thus the impact on

organizational outcomes. Although not mentioned by these authors, the cognitive literature referred to in the present work, and specifically the Hollnagel (1993) descriptions of the elements that impact cognition and control are applicable.

Figure 3.4 includes the relevant portions of the Rajagopalan and Spreitzer model, how they relate to the Transformation Model presented below, and specifically to the process factors of interest in this study.



Adapted from Rajagopalan and Spreitzer (1996)

Figure 3.4: Cognitive and Learning Elements

3.3 Context, Competence and Control

In searching for a way to model the effects of behavior and cognition on individuals and groups, cognitive engineering researchers have developed several approaches. Traditionally, much of the modeling work in this field has centered on tasks (Vicente, 1999), individual interactions with technology, and certain aspects of the domain in question (Bitan, Meyer, Shinar, & Zmora, 2000; Javaux & Polson, 1999; Parasurman & Riley, 1997). The understanding brought to these situations with such models has allowed us to better recognize what affects performance and behavior, thus

enable better system designs. One area that has been overlooked, and which is addressed by Hollnagel in his development of a Contextual Control Model of Cognition (COCOM) (1993), is the different stages of competence and control that interact with each other, affecting behavior of individuals in a variety of task domains. The model is focused on the cognition of decision makers and other actors, with its ultimate goal to improve performance by understanding that different contextual factors may have an unproductive impact on managerial understanding.

The development of the COCOM and the original discussion surrounding the different stages is focused on the individual worker. Some studies have applied the COCOM to group situations (Stanton, Ashleigh, Roberts, & Xu, 2001), finding support for many of the internal model factors. For the present research, the COCOM is used as an organizing metaphor through which to address issues of transformation processes. The overall model of transformation presented here relies heavily on concepts and variables described in the COCOM. Acknowledging that this is originally an individual-level model, the transformation model here draws on it as an organizing framework to help describe and delineate relevant variables in the process of transformation. More detail about the COCOM is presented below.

3.3.1 Introduction to the COCOM

One of the motivating factors for Hollnagel's development of the Contextual Control Model is to deal with what he describes as the inaccurate reflection and representation of how individuals actually perform in situations (Hollnagel, 1993). The concept of cognitive goals is applied here to the enterprise as an entity, including goals of key decision makers, and thus the organization-level goals. This focuses attention on

cognitive goals and associated procedures, tasks and/or behaviors that pertain to each stage of transformation. Figure 3.5 shows the Contextual Control Model.

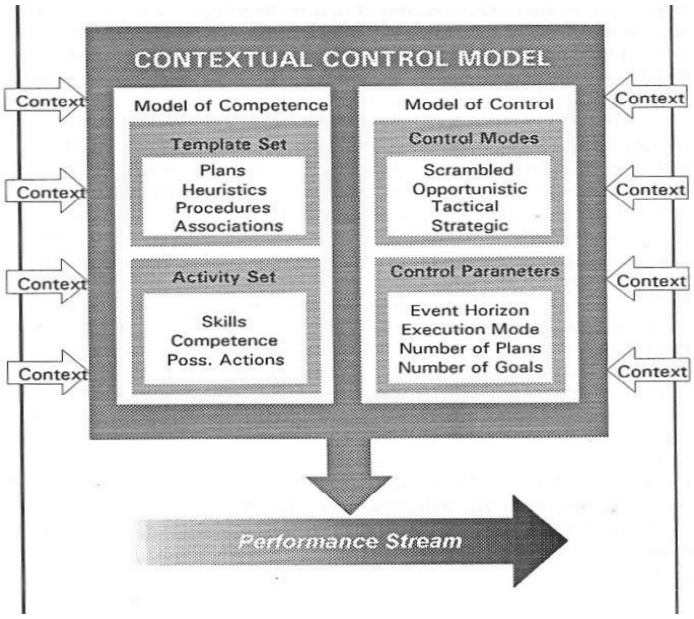


Figure 3.5: The Complete Contextual Control Model (Hollnagel, 1993)

3.3.2 Templates, Competence and Control

In the explication of the model, three of the pieces are of most interest in inspiring inclusion of certain variables for their study – templates, competence and control. Hollnagel describes templates as the organizing framework around which certain patterns for carrying out actions are developed. These templates can be procedures, rules, or guidelines that an enterprise (or individual) follows in aiming for successful performance. There is a wide variance in decision makers' recognition of the need for transformation, as well as in the ways such large-scale changes are implemented within an enterprise (See Section 2.4 in Chapter 2). This phenomenon is related to the choice of template, which interacts with the control mode, and thus competence level.

The Contextual Control Model includes an analysis of both the degree of control at different stages, as well as the level of competence of the individual. These two factors together, competence and control, impact the understanding of any particular situation and the commensurate reaction or behavior. In the case of transformation, we can use these factors, competence and control, as inspiration for inclusion of similar variables in the model. For example, enterprise competence is a function of the previous successes and failures of an enterprise in its given environment, which in turn are functions of system behavior, operations, and the success and failures of key decision makers. The idea of core competences for organizations and subsets within them is a well developed one in the management literature (Prahalad & Hamel, 1990; Williamson, 1999). Similar to what Hollnagel describes in developing the model, what the enterprise is capable of corresponds to the needs, demands and abilities of the enterprise as reflected in the cumulative knowledge, skills and processes within the system.

3.3.3 Control Modes

Hollnagel describes control modes that fall along a continuum of more or less effective control, based on experience and other determining factors. The steps along the continuum that Hollnagel describes include four modes – scrambled, opportunistic, tactical, and strategic. For the purposes of this study and the inspiration that the Hollnagel model provides for the creation of the process model below, it is sufficient to recognize that control is quite variable. Individuals, and thus enterprises, react to uncertain situations based on multiple contextual factors, choosing, either consciously or reactively, a place along the control mode continuum. The kind of control mode in which

they operate then impacts the eventual outcomes, specifically the success of transformation processes.

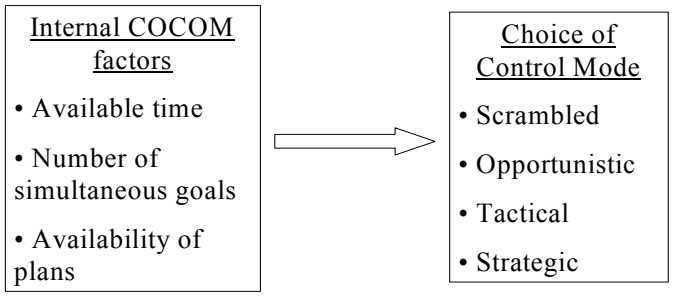
The concepts of anticipatory and reactive change discussed in Nadler and Tushman (1989) resonate well here. These authors contend that anticipatory change provides more time to plan and adjust behavior and thus the enterprise members operate more effectively in transformation times. Combining this idea with the idea of the control modes drawn on from Hollnagel, we begin to arrive at a new model created by the combination and inspiration of several existing theories.

The discussion of plans and procedures available to individuals during times of uncertainty or complexity is present throughout all COCOM parts – competence, templates, and control. A central notion of time is included with the proposition that as the number of available plans increase, either as a result of prescribed options by decision makers, or because of individuals' experiences with similar situations, the chance of operating under more effective control modes increases. We have included two other notions related to plans and procedures in the process model here – clarity and flexibility of plans. The explicit inclusion of these factors was driven by some of the primary qualitative data gathered prior to finalizing the survey, as well as other theoretical foundations.

The number of simultaneous goals, though included, is not addressed in depth in Hollnagel's original model development. His main contention about this factor is that as the number of goals increase, people consider multiple parallel task tracks, characteristic of tactical and strategic control. In the case of enterprise transformation, the number of simultaneous goals will most likely be predetermined for most organization members, as

the end state of the overall transformation is described and rewarded by managers. We have also included measurements of the clarity of goals, and flexibility of goals in the model and testing of hypotheses, as these supplement and support the prescribed goals factor.

Figure 3.6 shows how the chosen factors from the Hollnagel COCOM relate to the choice of control mode. The Transformation Model presented below describes these COCOM factors as part of the transformation process and thus, the choice of control mode is proposed to affect the success of the transformation, and enterprise outcomes, through a partial mediation between the antecedents and the outcomes.



Adapted from Hollnagel (1993)

Figure 3.6: Control Mode Factors

As mentioned in the preceding discussion, additional variables have been added in the final process model found at the end of the following section. The additional variables have been added to the goals and plans factors, and their inclusion was partly influenced by the findings from the interviews, which will be discussed in greater depth in Chapters 5 and 6. The theoretical development of the full Transformation Model and the qualitative data gathered through interviews of appropriate practitioners helped

inform the choice of these additional factors. The relationships between these factors and the ultimate success metrics of transformation have been included in the detailed hypotheses below.

As discussed in Chapter 1 (see Figure 1.2), the levels of analysis for this dissertation are multiple, and include consideration of individual, and aggregate (enterprise) behavior and reactions. Because the Hollnagel model upon which we draw in order to help inform the creation of the original Transformation Model here, is based on individual level considerations, it is worth noting the connection to individual versus enterprise levels of analysis. As with other models used as theoretical bases upon which to build an original model in the present study, the Hollnagel COCOM provides some metaphorical guidance. Consideration of the COCOM has inspired the inclusion of individual level control modes, and their antecedents. The levels of analyses considerations also helps inform the choice of appropriate methodology, discussed in depth in Chapter 5. Survey techniques are some of the soundest in terms of gathering individual level data to be aggregated at a group or organizational level. Therefore, the guidance of the COCOM and the inclusion of individual-level factors that are influenced by transformation, provide us with additional fodder upon which to base the arguments, as presented in the hypotheses and their testing, that individuals must change their behavior, tasks and work processes as a result of transformation process goals, and therefore the organization as whole, and the outcomes and processes it produces are changed in turn.

3.3.4 Summary of Foundation Theories

In an effort to mine existing knowledge about multiple process factors of transformation, we have reviewed three theories and their models, all of which contribute ideas about what to include in an integrated model. As discussed in the introduction to this study, the focus is on identifying measurable factors that allow us to isolate significant elements of transformations processes. Multiple relationships are included in the Transformation Model presented below, and several hypotheses are proposed within that model. These hypotheses and their empirical testing are based not on any one pre-existing model mentioned here, but rather on a new, unique, integrated model developed for this study. The table below provides a synthesis of the elements that have been included in the creation of the Transformation Model, inspired in part by some of the extant theories reviewed above.

Table 3.1: Summary of Reviewed Research

Level of Analysis	Theoretical Domains Considered	Considerations Included in Model
Industry	• Organization Theory • Strategic Management	Context of environmental changes that catalyze organizations to transform.
Organization	• Organization Theory • Strategic Management • Organization Behavior • Systems Engineering	Resistance to change characteristics, aggregation of individual and group reactions to change, considerations of learning, and transformation implementation process design.
Team/Group	• Social Cognition • Cognitive Engineering • Organizational Behavior	Group level aggregation of individual characteristics and reactions, including social cognition considerations and performance expectations.
Individual	• Cognitive Engineering • Psychology	Reactions to plans, goals and leadership qualities during transformation process.

The table highlights the theoretical domains to which the elements included of the Transformation Model may contribute. These domains are those that have been previously presented as the focus of integration and testing in this study (see Figure 1.1). It is important to note, that the study does not attempt to be a comprehensive review of any of the research traditions called upon for conceptual insight and inspiration. For example, the Hollnagel COCOM has been described as a metaphor and inspiration for inclusion of multiple individual-level factors that affect decision-making and behavior patterns. One way of viewing the discussion of this model (or others specific to the additional factors included) is as a representation of the wider body of knowledge of which it is a part. In addition, this table helps highlight what elements of the different levels of analysis are specifically *not* included in the Transformation Model. Many research streams have developed extensive bodies of knowledge about all of the levels of analysis – individual, team, organization, and industry – that we touch upon here. Nonetheless, much of this research is not discussed or included in the Model and tested in this study. Below are some points of existing literature that are not included in the consideration of theoretical domains and model creation here.

- Individual level – management literature that addresses individual differences, personalities, emotions, attitudes or other affect-based reactions to organizational changes and structures.
- Team & group level – work group composition, communication between work groups, process of integrating teams, and other related areas of team-based management and organizational behavior are not included here.
- Organizational level – internal organizational architecture, classic strategy foci, such as exploitation and exploration-based philosophies, alliance, networks, and other internally-focused organizational mechanisms are not included in this consideration.

- Industry level – mimetic, normative and other ecology-based considerations are not drawn on here. We do not consider in depth the composition of the industry, rather are more focused on environmental, and industry forces that instigate enterprise transformation.

In summary, we have reviewed existent theory that describes multiple considerations at several levels of analysis in order to facilitate the creation of an original, integrated model of transformation process factors and overall enterprise transformation stages. The sections below will present these models and the unique hypotheses that are derived from them. We will present the data and tools to analyze these hypotheses in subsequent chapters, providing a contribution to all the theoretical domains integrated here.

3.4 Enterprise Transformation Model

The Transformation Model represents the major aspects of a cycle of large-scale change affecting complex enterprises. The model includes what this author considers to be all the major components of the cycle – from the misalignment forces that cause the need for enterprise transformation, to the recognition of the forces, and thus implementation of change processes, the process itself and the variables inherent in it, and the outcomes. Several areas are included as moderators or other pieces of the overall cycle, such as learning and resistance to change characteristics. Some of the background and initial characterizations of these areas are discussed at length above, but the focus of the empirical piece of this dissertation is the categorization and measurement of process factors as they relate to outcomes and success of enterprise transformation.

Figure 3.7 shows the elements of a transformation process that are presented as an integrated model here. This process model resides within the larger full Transformation

Model. The process elements come primarily from an integration of some of the factors and ideas that were inspired by the COCOM and the two other models discussed above focused on leadership, cultural factors, and enterprise transformation outcomes.

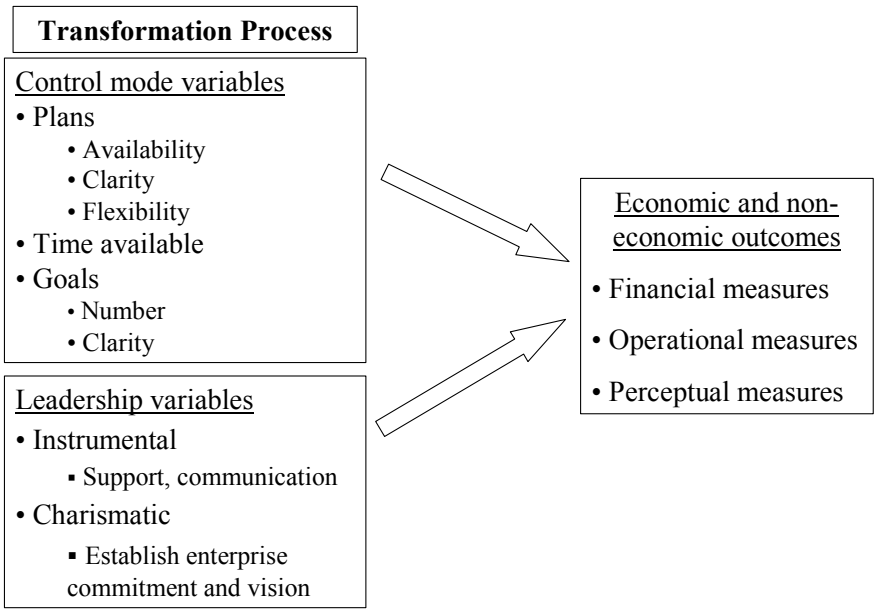


Figure 3.7: Integrated Process Model

Evident from the integrated process factor model above is the inclusion of both qualitative factors, such as those included in the charismatic leadership variable, and more quantitative, or action-oriented factors, such as those that influence the choice of control mode. There are reminiscences here from the COCOM, as well as the Rajagopalan & Spreitzer, and Nadler & Tushman archetypes about what influences the eventual success of large-scale transformation. This process-specific model is then embedded within the Transformation Model, which includes several additional antecedent and intermediate factors in describing what affects enterprise transformation in general.

Figure 3.8 then displays the complete Transformation Model. This model is based on much of the literature and theoretical foundations already discussed, and is relevant to the enterprise level of analysis, though includes multiple levels of consideration. For example, many of the process variables are captured and measured at an individual level, through the use of surveys, but aggregated to relate to organizational level outcomes, such as financial measures, and overall transformation success metrics. Several of the areas presented in the model are not measured or tested in this dissertation, and are represented here by dotted lines. Further research will empirically test and measure these facets of the model. The direction and magnitude of the relationships proposed is discussed below, though not included in the model for the sake of ease of presentation.

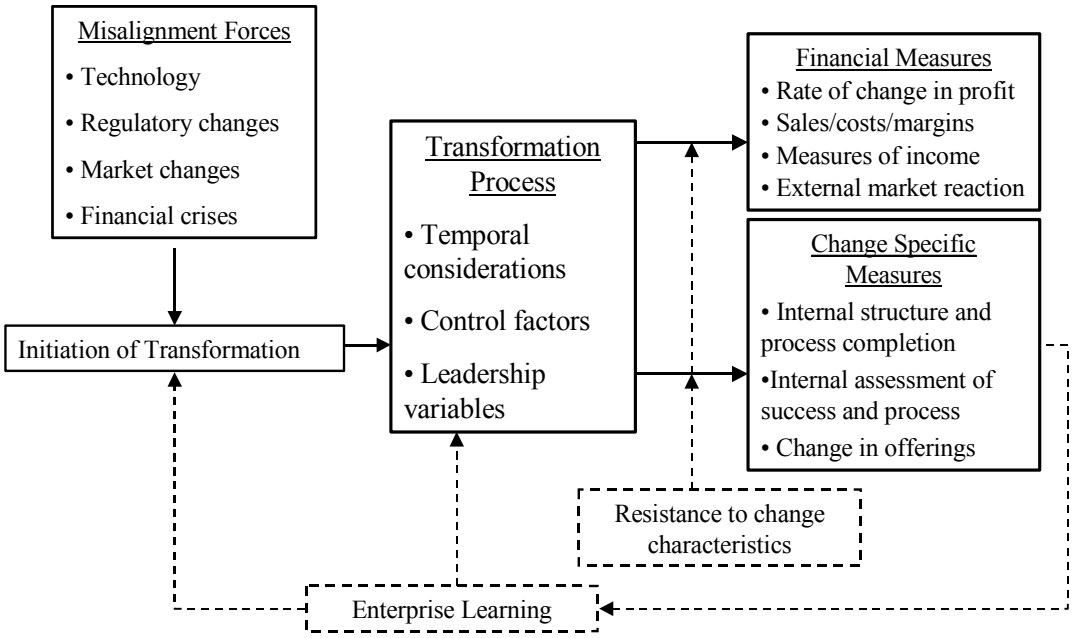


Figure 3.8: Model of Enterprise Transformation

3.5 Process Factors and Outcomes Hypotheses

The preceding discussions have illuminated this author's perspective about the different elements involved in a comprehensive understanding and thus modeling of large-scale enterprise transformation. Although we have spent some time discussing the notions of forces that catalyze transformation (misalignment forces), recognition and resistance to change internal to organizations, and potential mediators or feedback factors, such as learning, the focus of the current research remains the process of transformation. The goals of the current project are to describe and then measure appropriate factors that help determine more or less successful transformation processes.

Based on three change models already explicated and measured in the literature, we have created a detailed, fully specified model of transformation process variables and directional relationships to different potential outcomes of such processes. The factors are both quantitative and qualitative, thus integrating behavior and task-oriented factors with belief- or culturally-based metrics. Based on the development of the Model and the understanding of what elements lead to more or less control of individuals and thus aggregate to provide more or less successful transformation, the following hypotheses have been developed. The creation of these hypotheses was evolutionary and iterative, as the model was developed while primary, qualitative research was conducted. The hypotheses are all specific to the Integrated Process Model (Figure 3.7), specifying measurable relationships between the various factors and the transformation outcomes. The creation of a survey instrument to measure these and other transformation-specific variables within the retail industry was informed by the hypotheses' development and explication.

Four primary groups of hypotheses are specified, classified by the factor category in which they fall. The theoretical justification for all the hypotheses is best discussed/understood above in the context of the model development. The three foundation models that were used as inspiration/foundation here to develop the transformation process model were augmented by the results of the primary, qualitative research. The interviews and further conceptual attention to relationships between antecedent variables and different outcomes of large-scale transformation evolved into the development of several proposed relationships. Once the hypotheses had been developed, the design of a survey instrument allowed for greater detail to the specification of the testing and measurement of the variables and their relationships within the model. The measurement and testing of the variables and hypotheses is discussed in detail in Chapters 5 and 6 below. Following is the list of the relationships proposed here in the hypotheses.

In general, based on the Transformation Model presented above, the relationships proposed are that: *Process factors of enterprise transformation have an effect on the success of the transformation, through the choice of control mode as a mediator.* The more specific hypotheses that are tested through the survey disseminated are the following:

Time

H1: The time available to make required changes during an enterprise transformation will have a positive relationship with the success of the transformation.

Goals

H2a: The number of goals required during a transformation process will have a positive relationship with the success of the enterprise transformation.

H2b: The clarity of the required goals will have a positive relationship with the success of the enterprise transformation.

Plans and Procedures

H3a: The availability of plans (both organizationally-provided and individual) will have a positive relationship with the success of the enterprise transformation.

H3b: The clarity of the plans and procedures provided will have a positive relationship with the success of the enterprise transformation.

H3c: The amount of flexibility embedded in the plans and procedures will have a positive relationship with the success of the enterprise transformation.

Leadership

H4a: The clarity of the vision during an enterprise transformation will have a positive relationship with the success of the transformation.

H4b: The amount of communication from the leadership during an enterprise transformation will have a positive relationship with the success of the transformation.

H4c: The amount of leadership support and commitment to an enterprise transformation will have a positive relationship with the success of the transformation.

Figure 3.9 below represents the hypotheses as embedded in the Integrated Process Model, and thus in the full Transformation Model. We see the positive relationships proposed between all of the categories of antecedent variables and the outcome variable, success of the transformation. We also see that the explanatory factors are hypothesized to relate to the transformation success through the meditation (partial) of the control mode. Thus, as individuals' (and therefore the enterprise as a whole) increase their level of effective control along a continuum, the aggregate level of success of the enterprise transformation increases as well. Note that all these hypotheses, and the model in which

they are placed come from the creation of an original model, informed by, but not a direct testing of, previous conceptual and empirical research.

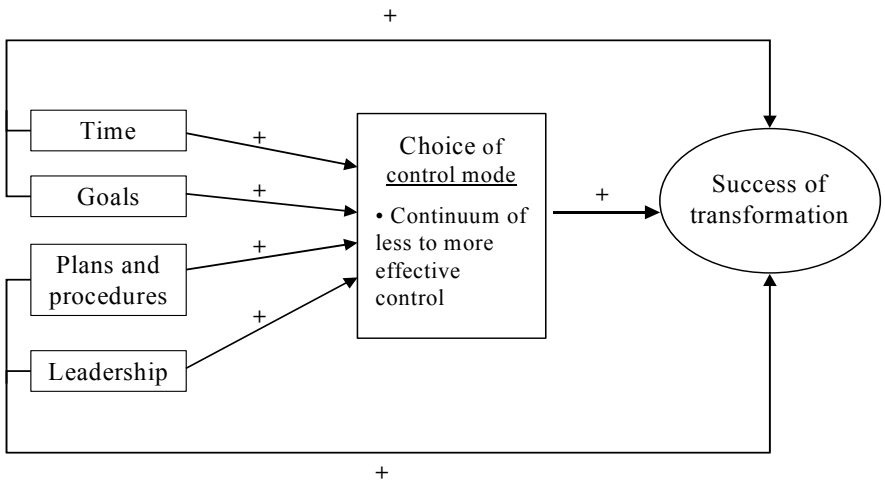


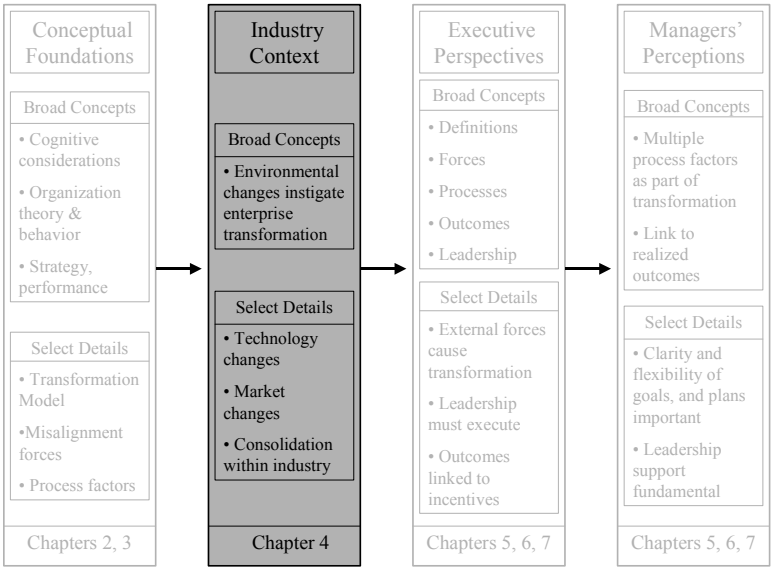
Figure 3.9: General Hypotheses

In conclusion, we note that the hypotheses are testable articulations of the relationships proposed in the previous theoretical discussions. The integrated process model developed here, along with the full Transformation Model of which it is a part, draws from theoretical knowledge and original research conducted in this study, to arrive at a comprehensive perspective on the salient factors to be studied. A multi-method research design was developed in order to test and measure the factors articulated here and their relationships with each other. The next chapter (Chapter 4) focuses on the setting for the research study – the retail sector. Chapters 5 and 6 subsequently discuss in detail the research design, and the results and their interpretation respectively.

CHAPTER 4 – CONTEXT FOR STUDY: THE RETAIL INDUSTRY

4.1 Retail Industry Background

The retail industry is one of the oldest of post-agricultural society. We can trace the roots of the industry back to bartering and trade methods of sales. For the purposes of the present study, it is relevant to focus on a historical perspective of the past 20 years of the retail industry in the United States. The drastic changes the retail industry has undergone over the last two decades provide a fertile domain for studying the effect of industry changes on individual enterprises. The Thesis Flow Map is included here, with a clear focus on the second portion of the study – industry context.



Before delving into the specifics of present industry characteristics and the changes that have catalyzed transformation among retailers, it is necessary to describe the composition of the sector. The consumer product companies that manufacture the goods sold by retailers represent the beginning of the supply chain for the industry as a whole.

(We could include consideration of the raw goods suppliers, but that inclusion is beyond the scope of interest here). In addition are the companies that distribute goods to retailers, though manufacturers are increasingly playing this role, as well. Manufacturers and distributors interact with the retailers, who face the customer, to make up a multi-step supply chain for the industry. Several of the steps along this distribution line include sourcing of the raw materials needed to manufacture the goods, warehousing, inventory management, and distribution to retailers. The empirical portion of this study does not examine the retail supply chain in depth, but does include consideration of innovations and changes along the supply chain that have in turn affected the operations and management of retail organizations.

Industry analysts, trade associations and their respective publications classify the industry along multiple dimensions, with some disagreement among them (Insight, 2004; Plunkett, 2005). The major categories of retail trade include apparel (including footwear, clothing, and accessories), hardware, home furnishings, domestic appliances, and soft goods. Sales of automobiles are included in the figures of retail trade revenues, though the *manufacturing* of automobiles, and therefore the sales figures of auto companies are not (About.com, 2005; Hoovers, 2006). It is important to keep this distinction in mind when analyzing the retail sales figures at an aggregate level.

Food retailers are also included in retail industry reports and figures. These include traditional grocery stores, or supermarkets, and specialty food stores, such as gourmet shops. The inclusion of food retailers is increasingly affecting more categories of retail stores, such as the warehouse-type, or big box stores, as these firms increase their offerings to include food and perishable items (Anonymous, 2003b; Lisanti, 2002).

Recent figures indicate that Wal-Mart may control between 16 and 25 percent of the grocery business in the U.S., depending on geographical area, through the sales of its supercenters (Fishman, 2006).

Another dimension along which the retail industry can be grouped is that of price. Different retail establishments focus on varied price strategies, thus segmenting their consumers and market foci. Among these are specialty stores, apparel-focused organizations, big-box or warehouse stores, home furnishing stores, and discount stores (Insight, 2004; Plunkett, 2005).

Yet a third dimension of relevance is variety of goods offered. Consumers are familiar with the different categories of retail stores that offer multiple products – department stores, convenience stores, discount, apparel only, etc. We can include a spectrum of variety in classifying the individual enterprises within the broader retail trade category – ranging from focused, low variety stores to large format stores that include most categories of retail sales.

Based on industry classifications, then, two major dimensions upon which to group enterprises in the retail sector are price strategy, and variety or breadth of offerings. In addition, a third dimension to help further group the myriad organizations that belong to the retail sector is one of size. Aggregate groupings of organizations based on their sales levels allow for three major categories – small, medium and large retail organizations. The present research includes statistics and analysis on the retail sector over the past twenty years, specifically focused on the changes in sales, certain internal costs and several measures of income. The range of sales is from less than $1M to over $250B for the industry.

The North American Industry Classification System (NAICS) codes are used to delineate the companies included in the analysis here. The codes have been established by the NAICS Association in order to classify industries and their subcategories for the purposes of analysis and research. The codes are 6 digits, with the first two digits designating the industry sector, the 3rd designating industry sub-sector, the 4th industry group, the 5th overall industry, and the 6th identifying nation-specific designations (Association, 2006). For this study, all companies in the 44…. and 45…. codes were considered in the analysis, and participants in the survey included in the sample were all employees belonging to companies who fall into these code classifications. The 44-45 NAICS designations are defined as Retail Trade, and include all subcategories of retail establishments discussed above. Both codes include store and non-store retailers (the latter category is for catalogue and electronic only retailers). Both codes include food retailers as well.

Most recent comprehensive statistics on the retail industry indicate the following trends and size factors (Insight, 2004):

- Department stores and apparel comprise 15% of the industry
- General merchandise and superstores comprise 24%
- Building materials and hardware stores comprise 11%
- Food stores comprise 18%
- Restaurants comprise 12%
- Furniture and appliances comprise 7%
- All other combined categories comprise 13% (include groups such as jewelry, pharmacy, etc.)
- In 2003 129.94 million people were employed in the retail sector in the U.S.
- Consumer spending in 2003 in the retail sector totaled $7.355 trillion

By many measures, retail is one of the top three industries in the U.S. (and worldwide), regardless of the sub-sectors or sales figures that may be included in the aggregate figures. According to some analysts (Plunkett, 2005), retail can be described as the second largest industry worldwide, measured according to the number of businesses and employees that make up the sector. Several macro economic factors, which will not be discussed at length here, influence the strength and size of the retail industry (Poskon, 2004). Among these are the interest rates and inflation rates. Interest rates most dramatically affect other industries, such as real estate, by offering different incentives for large purchases that must be financed for a long period of time (Insight, 2004; Plunkett, 2005). However, this in turn affects the retail industry, because those who invest in new houses or change houses more frequently must furnish, remodel, or in other ways spend increasing amounts in retail establishments as connected to increased real estate spending. In addition, lower interest rates allow many individuals to borrow against lines of credit and much of this money is spent on retail purchases (Plunkett, 2005).

Although we can chronicle the myriad ways in which there is a symbiotic relationship between the retail industry and several macro-economic forces both domestically and internationally, the present research only requires a high-level view of the impact of these forces. It is sufficient to realize that this industry represents a high portion of the U.S. economy in terms of number of people employed by various facets of retail trade, and the high level of contribution the industry makes to the GDP of the country.

4.2 Recent Shifts in the Retail Sector

In the section on misalignment forces in Chapter 2 we delineated several groups with a typology that includes four major categories of misalignment forces – technology, market forces, regulatory forces, and financial crises. Several of the categories include sub-groupings, defining the type of misalignment force in more detail. For example, technological forces can be realized in both the output of an enterprise and/or the production processes. Similarly, market forces include shifts in consumer tastes and expectations, competitive pressures, and factor price changes. This section describes the major environmental forces that have caused enterprise transformation within the retail sector in recent decades. We have categorized the explication of these forces in line with the misalignment forces typology. Of course, many of the forces cross the boundaries of the categories, and so may be realized as a combination of several factors, such as technology and market forces.

Myriad changes in environmental factors have influenced the way the retail industry and thus the enterprises within the sector have evolved in recent years. Many of these changes can be traced back to technological innovations and introduction of new processes and practices. Furthermore, the influence is iterative in that changes along certain lines of retail offerings and the retail supply chain have had the effect of influencing or changing consumer expectations, thus influencing to a greater degree the pressure on retail establishments. For example, lower costs of information technology increase the ability of retailers and manufacturers to increase the levels of information shared along the supply chain, which in turn influences all competitors to share the same levels of information, representing a mimetic force for compliance and change. Other

environmental changes have played a role in changing and evolving lifestyles, which in turn have an impact on consumer demands and expectations. The symbiotic relationship between consumers and retailers is constant and the power structures implicit in these relationships have also changed.

4.2.1 Market Forces

Organizational theory, based in both sociology and economic theory has shown that information asymmetry allows for different power dynamics. Those who hold more information generally benefit from increased power in a trade relationship. For most of the 20th century, retailers and their upstream partners in the supply chain had much more access to critical information than did the consumers to whom they sold their goods. There was little to no price transparency for the consumer – both throughout the supply chain and between competitors. Furthermore, geographic separation increased the level of power enjoyed by the retailers and their partners as a result of information asymmetry. However, over the past two decades, and increasingly in the last ten years, this information distribution has drastically changed, allowing for the consumer to gain more power in the relationship with retailers (Weber & Palmer, 2005).

The invention and implementation of information technology systems that have become almost ubiquitous in modern industrial society have provided access to information at unprecedented levels. Of most obvious influence is the Internet and the free or very inexpensive access to pricing information that it provides to the consumer. Comparison shopping is done quite easily at an individual's convenience, and thus price transparency between retail competitors has become the standard. There is little reason for consumers to pay higher prices for goods that can easily be compared online. Loewe

and Bonchek (1999) clearly described these influences as a convergence of economic, technological, social, and cultural forces that have led to heightened consumer expectations about more choice and better products at lower prices. This drastically changes facets of the power dynamics between consumers and retailers.

Several other consumer trends have affected the lifestyles and therefore choices/demands of retail customers. Among these are the increased pace of life in general, especially in industrialized nations such as the U.S. (D'Onofrio, 2005; Lesser, 2005). Discussion of social and economic trends that may be at the root of societal time pressures is beyond the scope of this current research. However, it is a well-recognized phenomenon in the U.S., among other countries, that people seem to have less free time available in their daily lives. Other entertainment outlets compete for the spare time often previously dedicated to visiting retail locations for entertainment and purchasing. The convenience of online shopping, or at least online price comparisons, has exacerbated this issue and the resulting condition is that people have less time available or are willing to spend less time on retail purchases. This makes convenience and reliability two of the main attributes that consumers seek and demand from their retail choices (Tohmatsu, 2005).

The influence of China and other Asian markets, both as potential consumers and currently as suppliers/producers of goods cannot be overstated. The United States has been overrun with a frenzy of activity in China during the past ten years, with each year increasing in its furor (Browne, 2006; Hiebert, 2006). The price of labor, land, goods, and other inputs to manufacturing processes is less in China than has ever been seen in previous production situations. Even the costs of shipping do not outweigh the benefits

to producing in China. Furthermore, as more western companies do business in China and ramp up production facilities, the quality of the goods produced there has been increasing steadily, making obsolete in most cases the concern for quality that had previously existed. The impact of the increased reliance on China (and other Asian countries) for production has been along multiple levels of the supply chain in the retail sector (Thompson, 2006). Decreased prices and simultaneous maintenance of certain quality standards have been the crux of the reaction and effect on the industry.

In order to effectively compete with large-scale retail shops, such as Wal-Mart and other large department stores, smaller specialty stores that are accustomed to buying in western countries have had to find ways of competing that may not be based on prices. Because of the decreased prices afforded by Asian production, and the decreased costs that have been realized due to technological innovations along the supply chain, there is little room for price competition. Furthermore, price transparency and online comparison-shopping leave little room for price escalation. Although this has the result of diminishing margins for retailers across the board, it also affords several areas for successful competition.

One of the most interesting and evident results of the cost reduction and price de-escalation has been to focus competition on niche strategies and other areas of differentiation (Sovey, 2005). Retailers must be clear about their differentiating tactics and what they offer consumers. Much of this may come in the form of branding, but there is also real differentiation in terms of the goods, quality, and market to which retailers can target their strategies. Luxury goods have actually seen an increase in demand, due to a reaction against the prevalence of low cost, yet mid- to high-quality

merchandise. This is most obvious in apparel and accessories, as high end department and specialty stores have enjoyed some growth in recent years as they target consumers who desire to separate themselves from the general public that enjoys the convenience, price and quality of less expensive stores (Cohen, 2004).

4.2.2 Technological Forces

In addition to the increased price and variety information available to consumers, certain technological innovations have affected the cost structure of the entire retail supply chain. Innovations and introductions of new systems for supply and distribution have exploded in recent years. These innovations have catalyzed many supply-side changes that have allowed retailers to offer much lower prices than ever before. Deregulation of key industries, such as trucking, telephony, airlines, and financial services has also decreased costs to retailers and their upstream partners such as manufacturers and distributors (White & Belman, 2006). Globalization of trade, facilitated in part by new information and other technology has also brought about a tremendous decrease in the prices of retail goods, as a result of the decreased price to retailers (Loewe et al., 1999).

Many of the same technologies that have increased consumer power in the retailer-customer relationship, have also helped retailers lower costs, and thus prices, increasing the rate of growth. Because many of the technological innovations in the industry have been realized along the supply chain, the end result is that a strong, efficient and cost-lean supply chain operation is critical to retail success. Most of the top retailers, measured by sales levels, have made significant investments in their supply chain operations, either internally, or through partnerships with supplier companies.

There has been a marked increase in merger and acquisition activity among top retailers in the most recent 5 years (Rozhon, 2005b; Tohmatsu, 2005). Much of this activity is driven by the need to drive down costs in the supply chain, and the most significant benefits may come from size advantages, as retailers seek to benefit from off shore sourcing operations. The cost advantages that come from sourcing in foreign countries, especially China and India, are best realized with large-scale operations that can command a large market share in the vendor markets, and that can take advantage of the scale needed for inexpensive shipping from Asia (Dabierre, 2005; Garrison, 2005; Tohmatsu, 2005).

Channel blurring has been another important effect that has come from technological innovations along the supply chain (Elliston, 2003; Lisanti, 2002). Channel blurring in this context refers to the integration along the supply chain of different enterprises, which can include movement into different distribution channels. Elliston states "The synthesis of various channels of retail, morphing into replicas of their competition, extends to categories and services not directly associated with the channel..." (Elliston, 2003). As the costs of production and distribution have decreased, the increased information available along the supply chain has also caused an increase in the ease of distribution. In turn, it has become necessary for multiple actors along the retail supply chain to share information with each other – suppliers, retailers, distributors, inventory managers, and warehousing specialists all benefit from sharing previously well-guarded information. The ability of different players along a value chain, such as those in retail, to expand their operations upstream or downstream has increased quickly, resulting in increased channel blurring. For example, companies that were traditionally

consumer products companies have been recently expanding operations to include direct consumer-facing retail locations. Some of the most obvious examples are the retail locations begun by top sports apparel retailers, such as Nike in recent years – companies that previously only manufactured product for distribution through secondary retail channels. Also, the selling of products traditionally bought in supermarkets, such as food and cleaning products, by other retailers, such as big-box stores and home goods stores, provide examples of channel blurring (Lisanti, 2002). Similarly, the converse has also happened, as retailers have begun to expand their operations into the production side (Garrison, 2005; Kuzdzal, 2005; Tohmatsu, 2005).

4.2.3 Influence of Wal-Mart

Wal-Mart and its tremendous growth in the past 15 years have garnered much attention from practitioners and researchers (Arndt, 2006; Fishman, 2006; Rozhon, 2005a), and deserve special attention as market and competitive forces catalyzing transformation in the retail sector. One can view the growth of this company and its ensuing tremendous influence on the retail industry as epitomizing many of the changes discussed above. Much of the impact of the Wal-Mart growth and retail dominance can be summarized with the following points:

- Significant shifts in consumer expectations of price, variety and convenience.
- Erosion of margins across the industry due to cost cutting measures facilitated by lean supply chain operations, consolidation of suppliers and distributors, off shore production, and lower margin strategy by Wal-Mart.
- Wal-Mart influence on suppliers driven in part by technological innovations – i.e. the increased use of technology for information sharing, transparency of vendor pricing and operations, consumers' data capturing, and use of new technologies, such as RFID, which transfer many of the costs to the suppliers.

- Many suppliers have instituted new policies and processes as a result of Wal-Mart's influence and demands, which in turn affect other retailers.

Wal-Mart itself has not undergone a transformation, in the terms set forth in the present dissertation, as the company has never radically altered its focus, strategy, operational goals, or internal culture. The company has grown tremendously and has had to adjust operations according to its increased scope and scale, but its focus on low costs, tight supplier relationships, and low to mid-income consumers has not wavered thus far. There has been some indication in the past two years that Wal-Mart is feeling the effects of successful competition by other retailers targeting higher-income segments, and that the company may be shifting, or expanding its focus to target these consumers as well (Barbaro, 2006; Rozhon, 2005a). What the company's policies and growth have done, in turn, have been to influence the other players in the industry to transform in order to effectively compete. Many of the trends and changes in the retail market place, both on the supply and demand sides have been at the very least catalyzed by the Wal-Mart model and success. Other competing retailers have had to adjust their strategies, supply chain relationships and targeted markets in order to compete with the behemoth that Wal-Mart is today (Garrison, 2005; Perkins, 2005; Strang, 2005).

The most effective competitive policies have proven to be not direct competition with Wal-Mart on its strategy of low price, high variability, and massive locations, but to differentiate, focusing on alternative aspects of operations (Anonymous, 2003a; Gordman, 2003). Most successfully competitive retailers that have employed a differentiation strategy to compete with Wal-Mart have had to transform their internal operations, external perceptions, and other fundamental cultural and structural

dimensions in order to execute and affect the appropriate strategies. Several retail interviews conducted in this research highlighted these issues and two of the concept maps that capture these discussions are included here in examples 1 and 2 in Appendix C.1. The aggregate concept map of all retail-specific discussions (available in Appendix C.1) also captures these discussions and highlights the overall industry trends, misalignment forces and outcomes realized by those in the sector. Concept mapping is a tool used to explore and understand qualitative data, and the methodology used here to create the maps is presented in detail in the next chapter.

4.3 Retailer Reactions to Misalignment Forces

In order to react accordingly to many of the changes in the industry, as well as environmental constraints and innovations, retailers must focus on several areas of potential transformation internal to their organizations. If an organization is the innovator in a field, or has come to the industry with a focus on the innovations causing radical change, that particular organization does not need to undergo transformation. However, the influence of market trends, decreased costs and therefore processes, increased consumer demand, and sharper competition continues to influence many retail organizations to transform their current operations in response to value erosions already realized or anticipated. Many of these transformational currents have been alluded to here, and the commensurate transformations by retail organizations can be summarized by the following strategies:

- Focus on differentiation
- Focus on electronic commerce

- Increased risk management techniques, including investments outside of retail sector
- Expansion into supplier functions (channel blurring)
- Tightening of links and revamping of supply chain
- Focus on international markets – not just for off-shore production but for future demand
- Clarification of branding and value proposition to consumer
- Increase in additional benefits (aside from price) to consumers
- Increased information sharing with supply chain partners and consumers
- Increased focus on acquisition and merger opportunities

4.4 Retail Industry Financial Analysis

Several statistics about the top retailers, measured by sales, reveal important highlights about the distribution of different attributes and the successful strategies employed by top selling retail organizations (Tohmatsu, 2005). The following figures are based on 2004 retail sales for publicly held companies:

- Among the top 250 retailers sales range from $2.2B to $256B
- Total sales among the top 250 retailers in the U.S. in 2004 equaled $2.6T
- 9 of the top 10 retailers include food sales in their products
- 108 of the top 250 retailers are specialty stores

Comprehensive financial data for all publicly traded retail companies, according to NAICS classification of codes 44 and 45 were analyzed for descriptive purposes. The key financial figures for the full list of these companies over the past 20 years were analyzed in order to provide statistical and data-driven understanding of the state of the industry and many of the shifts that have been realized as a result of the transformative environmental forces. Several key descriptive and change statistics were measured on

various financial metrics of the companies. Many of the changes seen within the composition of the sector can be attributed to the misalignment forces, as the companies under investigation here are only those publicly held, and so have by definition reached a level of previous success and size such that they are the enterprises most likely to be affected by industry shifts.

All financial information for the entire set of publicly held retail firms that fall into the NAICS categories mentioned above was examined. Several steps were performed in the categorizing and refining of the data. First, the 44 and 45 NAICS codes' annual financial reports were downloaded from the Compustat ™ database. Because we were interested in this study in companies that could have undergone transformation over the two most recent decades, any company with less than five consecutive years of data was eliminated. Next, the companies were sorted according to the financial metrics of interest – net sales; sales, general and administrative expenses (SG&A); and three different income figures – operating income before depreciation, income before extraordinary items, and net income. Accounting procedures and standards require multiple levels of income to be reported by public companies. Operating income is that derived purely by the operations of the company and includes limited amounts of costs, primarily cost of goods sold (COGS). Deprecation of capital assets is included in the final figure of operating income, though arguably it does not contribute to the actual operations of an organization and its expense can be used as a measure of the physical asset age of capital holdings. Therefore, operating income before depreciation can provide us with a 'purer' measure of income derived from operations of the company directly related to sales. Multiple other expenses are included after the

operating expenses, such as those costs associated with financial holdings, investments, and improvements in capital. Extraordinary expenses are allowed as deductions for companies that incur one-time expenses – such as costs related to acquisition, divestiture, or bankruptcy proceedings. The measure of income before extraordinary expenses allows us to analyze the 'almost' final income of the company, including these additional non-operating costs, but minimizes the impact of large costs incurred any particular year for out of the ordinary activities.

The 'net income' measure is reported on all public statements, investor reports, and is the figure normally examined by analysts and other financial researchers in order to determine the health of a company. Although this figure includes all non-operating expenses, it is the responsibility of the enterprise leadership to manage these expenses along with those incurred in the actual operations of the company. Thus, the net income figure ultimately provides a measure of the management's ability to manage *all* costs. The following sections detail the findings from the multiple analyses of these figures and the number of retail firms analyzed.

4.4.1 Sales and Net Income Figures

Table 4.1 shows the mean sales and net income figures for all companies in this analysis over the 20-year period of 1984 to 2003. Several interesting results are seen in these figures, including the conclusion that competition is increasing and the fight for market power and customers among successful retail firms has become more ruthless in the past decade.

Table 4.1: Mean Sales and Net Income Figures

Year	Mean sales	Mean net income	Mean margin
1984	$ 1,190	$ 49	4.1%
1985	$ 1,200	$ 40	3.3%
1986	$ 1,228	$ 44	3.6%
1987	$ 1,275	$ 43	3.4%
1988	$ 1,434	$ 44	3.1%
1989	$ 1,536	$ 23	1.5%
1990	$ 1,644	$ 35	2.1%
1991	$ 1,687	$ 43	2.5%
1992	$ 1,775	$ 30	1.7%
1993	$ 1,846	$ 56	3.0%
1994	$ 1,952	$ 63	3.2%
1995	$ 1,902	$ 51	2.7%
1996	$ 2,022	$ 59	2.9%
1997	$ 2,233	$ 66	3.0%
1998	$ 2,562	$ 84	3.3%
1999	$ 2,996	$ 103	3.4%
2000	$ 3,436	$ 89	2.6%
2001	$ 3,994	$ 91	2.3%
2002	$ 4,498	$ 139	3.1%
2003	$ 4,780	$ 195	4.1%

The mean level of sales for all publicly held retail companies has grown over 300% from 1984 to 2003. However, for the first ten years of the period (1984-1993) mean sales only rose 55% (from $1.19B in 1984 to $1.85 in 1993). Mean net income for the 20-year period of 1984 to 2003 rose approximately 300% as well. For the first ten years of this period, mean net income only rose 14% for the group ($49M in 1984 to $56M in 1993). On further examination of the income figures, it is clear that the last two years of the 20-year period under study here are what have shown significant increase in the net income of retail firms. One can see in Table 4.1 that the percentage change in income between 1984 and 2001 (18 year period) was still only at 86%. This supports the evidence that prices have been decreasing in the industry and that competition has simultaneously been increasing in intensity. The average industry margin rate was at the

same level in 2003 as in 1984. However, for much of the time period under study, the margin rate in the industry was decreasing, and has only seen increases to its former level in the last two years. It is yet to be determined if this trend will continue, or revert to previous levels.

Some initial conjecture about these trends and the reason for extreme differences in margin and net income rates over the last two years of the period are based on several points of observation. In a reversal from previous high growth levels, 1999 and 2000 saw slower growth in sales levels for the entire retail sector. Much of this slow down was due to the stock market crash of 2000 as well as high levels of consumer debt that had spiked during the previous decade. Coupled with increasing unemployment and general economic volatility, growth of retail sales subsided in the early part of the millennium. Much of this slow down may have caused retailers seeking to survive to control costs better than they had previously. These controlled costs, along with overall industry consolidation may have had the effect of spurring higher margin rates in 2002 and 2003, thus improving the mean income levels across the group. The analysis of administrative costs below demonstrates that any cost cutting in retail organizations was not on average realized in overhead. Examination of the cost of goods sold figures in the industry over the period does reveal that the mean cost of goods sold as a percentage of sales has decreased from levels of approximately 70% twenty years ago to 66-67% in 2002 and 2003. This change provides some insight into the differences in margins we see above.

In addition, high-end, specialty retail stores have actually realized an increase in sales and popularity in recent years, perhaps due in part to a retaliation to the mass market, low price trends, and these high end retailers have much higher margins than

other outlets. Another point of note is that the interest rates and inflation rates in 2002 and 2003 remained very low, allowing consumers to increase their confidence and personal spending. Many of these trends have been catalogued and the financial and economic analysis that accompanies such observations is currently under way (Plunkett, 2001). It is beyond the scope of this study to provide a complete explanation or hypothesis about the changes in consumer spending over the past few years, but it is necessary to note some of the accepted factors that contribute to this shift in industry economics.

Table 4.2 below reports certain descriptive statistics for the industry sales figures over the 20-year period under study, providing more insight into the shifts and trends that affect retail organizations.

Table 4.2: Descriptive Statistics for Sales Figures

Year	N	Maximum	Mean	Median	Std. Deviation
1984	284	$ 38,828	$ 1,190	$ 170	$ 3,501
1985	312	$ 40,715	$ 1,200	$ 184	$ 3,549
1986	335	$ 44,282	$ 1,228	$ 207	$ 3,653
1987	348	$ 48,440	$ 1,275	$ 214	$ 3,855
1988	358	$ 50,251	$ 1,434	$ 245	$ 4,096
1989	366	$ 53,794	$ 1,536	$ 247	$ 4,381
1990	372	$ 55,972	$ 1,644	$ 284	$ 4,685
1991	392	$ 57,242	$ 1,687	$ 262	$ 5,008
1992	406	$ 55,484	$ 1,775	$ 292	$ 5,252
1993	412	$ 67,345	$ 1,846	$ 308	$ 5,571
1994	432	$ 82,494	$ 1,952	$ 321	$ 6,199
1995	462	$ 93,627	$ 1,902	$ 306	$ 6,082
1996	463	$ 104,859	$ 2,022	$ 361	$ 6,524
1997	457	$ 117,958	$ 2,233	$ 379	$ 7,312
1998	431	$ 137,634	$ 2,562	$ 446	$ 8,501
1999	408	$ 165,639	$ 2,996	$ 459	$ 10,351
2000	381	$ 192,003	$ 3,436	$ 571	$ 12,079
2001	350	$ 218,529	$ 3,994	$ 620	$ 14,047
2002	325	$ 245,308	$ 4,498	$ 671	$ 16,006
2003	297	$ 257,157	$ 4,781	$ 664	$ 17,452

We can see many trends in the sector based on the above figures. First, the maximum sales figure reported by any individual retail company each year has increased over 560%, larger than the mean increase in sales over the same period. Wal-Mart enjoys this highest sales level for every year from 1992 to the present, reinforcing the tremendous impact the company has on the entire industry. Another interesting note comes from the large increase in the standard deviation – the best measure of variability for the group. We clearly see that variability, thus the range of sales for all competitors, has increased during the period. Although absolute values of the median figures have never matched the mean values (because of the high outliers), the rate of change in the median sales figures is 292% over the time period, close to the rate of change for the mean values, which tells us that the pace of change for the entire group has been consistent.

4.4.2 Additional Income Figures

Table 4.3 below shows the descriptive statistics for income before extraordinary expenses and operating income before depreciation.

Table 4.3: Income Before Extraordinary Expenses and Operating Income Before Depreciation

		Income before extraordinary expenses			Operating income before depreciation		
Year	N	Mean	Median	Std. Deviation	Mean	Median	Std. Deviation
1984	284	$ 30.11	$ 3.95	$ 104.82	$ 66.97	$ 8.05	$ 272.39
1985	312	$ 26.40	$ 3.30	$ 95.96	$ 64.05	$ 8.32	$ 252.91
1986	335	$ 27.37	$ 2.93	$ 99.85	$ 68.21	$ 8.34	$ 264.51
1987	348	$ 26.80	$ 1.58	$ 119.54	$ 67.82	$ 6.91	$ 273.03
1988	358	$ 26.73	$ 1.82	$ 111.06	$ 75.59	$ 7.99	$ 296.37
1989	366	$ 15.20	$ 0.61	$ 175.87	$ 81.15	$ 7.85	$ 316.99
1990	372	$ 23.52	$ 0.82	$ 130.89	$ 79.89	$ 8.31	$ 292.31
1991	392	$ 20.18	$ 1.79	$ 159.68	$ 81.59	$ 8.97	$ 313.52
1992	406	$ 20.63	$ 2.97	$ 209.77	$ 82.35	$ 10.22	$ 270.55
1993	412	$ 34.80	$ 3.46	$ 193.89	$ 87.43	$ 8.79	$ 315.34
1994	432	$ 39.00	$ 4.08	$ 179.03	$ 96.48	$ 10.84	$ 367.86
1995	462	$ 31.05	$ 2.03	$ 177.50	$ 84.47	$ 9.13	$ 308.35
1996	463	$ 39.28	$ 2.90	$ 185.89	$ 94.96	$ 10.80	$ 334.98
1997	457	$ 44.31	$ 3.95	$ 222.41	$ 108.98	$ 11.13	$ 392.56
1998	431	$ 60.27	$ 4.97	$ 286.90	$ 129.35	$ 14.71	$ 459.36
1999	408	$ 70.92	$ 5.80	$ 352.24	$ 155.61	$ 17.16	$ 600.80
2000	381	$ 69.06	$ 3.75	$ 412.13	$ 170.15	$ 19.84	$ 681.42
2001	350	$ 71.83	$ 4.65	$ 457.79	$ 179.13	$ 20.47	$ 756.82
2002	325	$ 107.88	$ 13.93	$ 569.20	$ 223.21	$ 27.15	$ 875.33
2003	297	$ 137.17	$ 9.45	$ 637.50	$ 256.11	$ 28.28	$ 977.53
20 year % change		356%	139%	508%	282%	251%	259%
10 year change ('84-'03)		16%	-12%	85%	31%	9%	16%
18 year change ('84-'01)		139%	18%	337%	167%	154%	178%

As with the net income figures, the two income measures here allow us to make some inferences about the massive changes in the industry and the rate of competition over the last two decades. In general we see similar patterns to the rates of change for mean figures of both operating income before deprecation and income before extraordinary expenses as we do for the net income figures. This implies that on average, the retail group analyzed here (public companies with sustained operations) is managing its capital expenditures and one time charges well, such that they are not out of line with the bottom line income figures, and that trends over time remain consistent throughout

this group of organizations. However, the severe increases in standard deviation figures do provide more support for the conclusion that there is increasingly a very wide variance in the operations and income figures throughout the group. Some of this variation is of course influenced by large outliers, such as Wal-Mart, but since the standard deviation numbers measure spread throughout the entire group, there is evidence that the industry in general has seen a large increase in difference between high and low performing firms.

4.4.3 Sales, General and Administrative Expenses

Much of the focus of several enterprise transformations, within the retail industry as well as in many other sectors, is the reduction of costs, often focused on the reduction of overhead or administrative costs. Although there are several areas that may involve the cost cutting focus of transformation efforts, the sales, general and administrative expenses is one of the hardest hit. Table 4.4 below lists the mean and median SG&A expenses over the period under study, as well as the industry average SG&A expenses as a percentage of sales. This figure is actually more telling than the raw SG&A measure, because the important measure is not how much total money is spent in overhead and support costs, but how much of the sales realized are spent on these activities. The retail industry tends to have a rather high SG&A percentage because of the nature of the business – the management, corporate oversight in terms of strategy-making, future direction, and even daily operations is higher in general than we would find with certain other enterprises, such as those in manufacturing, for example.

Table 4.4: Descriptive Statistics for SG&A Figures

Year	N	Mean SGA	Median SGA	Std. Deviation	Mean sales	SGA as % of sales
1984	282	$ 222.81	$ 36.27	$ 579.24	$ 1,190	19%
1985	310	$ 229.32	$ 41.77	$ 591.79	$ 1,200	19%
1986	333	$ 232.94	$ 48.07	$ 607.04	$ 1,228	19%
1987	344	$ 242.90	$ 50.46	$ 626.21	$ 1,275	19%
1988	355	$ 263.94	$ 58.59	$ 639.74	$ 1,434	18%
1989	363	$ 286.65	$ 61.62	$ 682.92	$ 1,536	19%
1990	370	$ 306.84	$ 68.80	$ 739.58	$ 1,644	19%
1991	390	$ 317.16	$ 65.26	$ 809.96	$ 1,687	19%
1992	405	$ 333.73	$ 64.20	$ 875.68	$ 1,775	19%
1993	411	$ 356.46	$ 71.47	$ 954.38	$ 1,846	19%
1994	430	$ 381.15	$ 74.15	$1,088.49	$ 1,952	20%
1995	459	$ 407.15	$ 72.05	$1,187.19	$ 1,902	21%
1996	460	$ 424.79	$ 82.74	$1,227.79	$ 2,022	21%
1997	453	$ 470.12	$ 86.50	$1,381.85	$ 2,233	21%
1998	429	$ 533.54	$ 100.93	$1,565.98	$ 2,562	21%
1999	406	$ 629.17	$ 114.44	$1,908.49	$ 2,996	21%
2000	378	$ 705.97	$ 137.01	$2,188.44	$ 3,436	21%
2001	347	$ 805.23	$ 159.67	$2,522.79	$ 3,994	20%
2002	323	$ 903.70	$ 175.23	$2,885.02	$ 4,498	20%
2003	297	$ 985.87	$ 183.56	$3,215.13	$ 4,780	21%
20 year % change		342%	406%	455%		
10 year change ('84-'03)		60%	97%	65%		
18 year change ('84-'01)		261%	340%	336%		

We see here that the percentage changes in this expense have increased at similar overall rates to the income and sales figures in the industry, thus keeping pace with the overall growth for many individual enterprises in the sector. However, we also see that the mean rates of SG&A as a percentage of sales have actually increased over the last twenty years. This may in part be due to the added expenses that retail organizations have had to incur because of many supply chain innovations discussed above. Although innovations along the supply chain may result in lower technology and information sharing costs, as well as lower actual product costs, the administration, implementation,

and oversight of these new information systems and the increased partnership with vendors, suppliers, and products can certainly imply an increased need for personnel and other administrative costs. Furthermore, much of the initial investment in and maintenance of sophisticated information, data tracking, and processing systems is included in the SG&A costs.

Another important point to note in this analysis is that even though mean SG&A expenses have not decreased for retailers, the trend towards lower prices for consumers has been evident. Much of this chapter has discussed the changes in the retail supply chain that have caused major changes to retail organizations, among them the increased efficiency and thus cost control from suppliers and information technology systems, pressure from huge retail operations such as Wal-Mart, and decreased production costs in Asia. All these shifts in the environment, along with increased consumer power and information have resulted in an inability of retailers to charge price premiums, producing lower margins within the selling organizations (see discussion on sales and net income figures above).

4.4.4 Changes in Number of Retail Firms

Examination of the number of companies that comprise the publicly held retail sector over the period of 1984 to 2003 reveals more insights into the nature of competition and transformation in the industry. Table 4.5 tracks the "births and deaths" of companies over the period under study. A birth is counted anytime a company begins reporting its data in a specific year, and a death is counted any time a company ceases to report data in a particular year. These numbers are proxies for actual entrants and exits of retail firms, since before becoming public many firms have been in existence for several

years. We can also assume that most "deaths" are attributed to acquisition, divestiture or bankruptcy failing. It is unusual that a company will be de-listed from the public market and continue operations for any significant amount of time. These counts were only conducted as of 1989 and forward, because we had previously eliminated companies with less than five years of consecutive data, and so are unable to accurately capture the births and deaths that may have occurred from 1984 to 1988. However, the analysis from 1989 to 2003 reveals very interesting conclusions.

Table 4.5: Births and Deaths of Retail Firms

Year	Number of companies	Number of "deaths"	Number of "births"	Change in number
1984	284			
1985	312			28
1986	335			23
1987	348			13
1988	358			10
1989	366	9	17	8
1990	372	23	29	6
1991	392	12	32	20
1992	406	18	32	14
1993	412	15	21	6
1994	432	13	33	20
1995	462	9	38	30
1996	463	21	22	1
1997	457	20	14	-6
1998	431	32	6	-26
1999	408	33	10	-23
2000	381	30	3	-27
2001	350	35	4	-31
2002	325	25	0	-25
2003	297	29	1	-28
Total		**324**	**262**	

An additional analysis was added to the evaluation of births and deaths of companies – the mean number of employees in the same group of companies. This also supports the notion that as competition and acquisitions and mergers have been

increasing in the sector, the size of the companies surviving has increased. Figure 4.1 shows these two trends together, providing more support for the empirical analyses performed here.

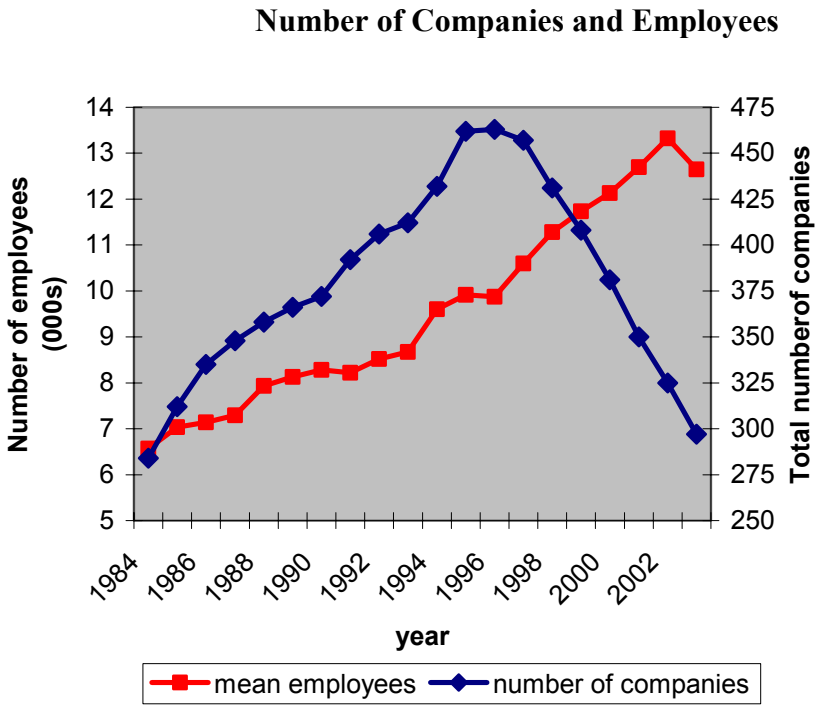


Figure 4.1: Graph of Number of Companies and Mean Employees in Retail Sector

Total number of public retail firms in 1984 was 284 and in 2003 was 297. There was a rise in the total number of retail firms in the 1990s, though much of that may be attributed to the stock market bubble that was evident during that decade. Table 4.5 and Figure 4.1 also show that in recent years the competition in the sector has become more severe, as the number of total deaths far exceeds that of births, while the average number of employees per company has increased. This also supports the findings by several researchers in the past five years that mergers and acquisitions in the retail sector have increased (Rozhon, 2005b; Tohmatsu, 2005).

We can attribute much of the increase in competition, and commensurate increase in number of deaths or exits from the industry to many of the environmental forces catalyzing change that were discussed above. Raised consumer expectations of price competition, variety of goods and positive service experiences all increase the pressure placed on retail firms. In addition, there have been many changes in the technology available all along the supply chain, squeezing many of the costs out of the system, thus placing yet more pressure on the retailers to keep prices and costs down. The availability of information for both consumers and other members of the retail supply chain also have caused the need for many firms to change the way they share information with their vendors, suppliers and customers. All of these forces have had the end result of forcing one of the oldest commercial industries to change its focus on strategy and internal enterprise structure and operations in order to find the most effective architecture with which to compete.

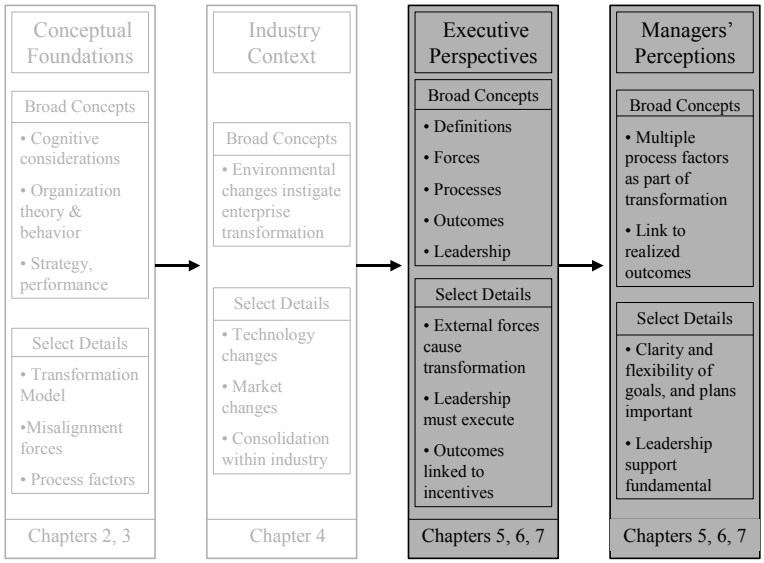
4.5 Conclusions

Based on what we know about recent changes in the various facets of the retail industry, and the accompanying financial analysis conducted here, we have much evidence to support the notion that this sector has been plagued by transformational forces. Accordingly, individual enterprises within the sector have had to dramatically change the way they view their competition, their suppliers, and their customers. The power dynamics have slowly shifted, and the end result is that retailers have been squeezed ever more. Their costs have decreased, but they have been met with increased expectations of high quality and variety of goods at lower prices. Competition, driven in

no small part by large companies such as Wal-Mart, has only served to increase the necessary pace of change. All of these factors represent a context of multiple misalignment forces driving transformation. Subsequent chapters will discuss in great detail the empirical portions of this study, including both qualitative and quantitative methods and analyses. It is helpful to keep in mind the environment in which these observations take place.

CHAPTER 5 – RESEARCH METHODS

Several methods were used in a comprehensive research design, driven by the goals and hypotheses of the study. Both qualitative and quantitative data analysis techniques allow for exploratory research, as well as hypothesis testing and model validation. This chapter will discuss in turn the motivation for the research design and the ways in which the different data collection methods were used in the overall research strategy. The chapter will also discuss the ways in which traditional concerns about the data collection methods were mitigated and systematically addressed. Techniques to ensure the robustness of the methods and the validation of the different research designs were conducted throughout. The following chapter provides detailed results, both descriptive and analytic, related explicitly to the Model presented in Chapter 3 and the hypotheses therein. The Thesis Flow Map here highlights both the third and fourth parts of the study. In this chapter we discuss both executive perspectives as well as managers' perceptions, as part of the multi-method research strategy.



5.1 Rationale for Research Design

Different intended outcomes and goals of research necessitate the use of different data collection methods and analysis tools. There were two primary goals of the current research – exploration or discovery, and model testing. As explained earlier, the Transformation Model was developed after careful consideration of existent theory and knowledge. In addition to basing the development of a new model and proposed hypotheses on previous research, qualitative primary data collection can provide much insight into theory building. Once the model was developed and certain hypotheses about relationships among internal model factors were proposed, two primary research methods were employed to explore the research questions and subsequently test some of the hypotheses and relationships.

Recalling the initial research questions presented in Chapter 1, the purpose of the study is to identify multiple transformation process elements and the relationships among those elements and relevant outcomes. Presented below are the guiding research questions:

- How do we delineate the scope of, and then measure and quantify transformation?
- What factors are included in multi-stage transformation processes and how are these factors measured?
- Given the above, which process factors are more or less related to and indicative of successful transformation?

These types of questions are best answered through a mix of qualitative and quantitative research methodologies, and include both theory building, based on inductive research, and theory testing, based on statistical techniques (Creswell, 2003; Yin, 2003). Interviews

with retail industry executives were conducted, providing the qualitative and exploratory data for the study. The development of new ideas about transformation process factors was informed by exploring situational experiences through interviews, while the structured hypotheses were more appropriately studied with statistical techniques, through extensive surveys.

5.2 Data Collection Methods

There are three parts to this study, each of which is best examined with a specific data collection method and analysis – contextual analysis, theory building, and theory testing. The first part of this study, the retail industry analysis, has been discussed above in Chapter 4, and includes multiple analyses of financial data from the industry over two decades. This contextual analysis provided validation for choice of industry in which to study the questions of transformation. The second part was conducted with a mix of parallel research tracks, including literature review, and executive interviews. The third part was evaluated with the survey results and analysis, and the instrument itself was developed based on the theory building findings from both secondary and primary research. The interviews were designed to help build the propositions within the Transformation Model, and produced data that helped inform the questions to be included in the survey. The survey was designed to capture perceptions that measure the factors theorized about in the Model and hypotheses, and then test the relationships between these factors. Both interview and survey methods of data collection have been well-developed and proper techniques described by previous researchers, references to which

are provided below. The goals of each data collection method are specific to the different parts of the multi-method research design.

5.2.1 Interviews

A series of 15 interviews was conducted with industry practitioners. These interviews serve as primary, qualitative data, focused on gaining knowledge about experience with transformation. The review of extant research was conducted concurrently with the interviews, thus facilitating an iterative development of new theory and the Transformation Model, and accomplishing one of the goals of the interview series. Another goal of the interviews was to provide information to help with the subsequent creation of the survey questions. Many of the interview questions were general transformation questions, several of which were used to set the stage about the kind of change being discussed and the scope of the processes in question. The full interview protocol is included in Appendix B.1, and a list of the companies represented by the interviewees is included in Appendix B.2.

The interviews were conducted with executives who focus on multiple aspects of the retail industry. Because there are two companies from which there were two interviewees each, the total number of companies represented by the sample is 13. Two of the 13 companies were privately held, so financial information on them is not available. Of the 15 retail executives, five each belonged to the three primary industry groups that categorize the entire retail industry – retailers, supply chain specialists, and consumer products executives. The five supply chain specialists were focused on the logistics and supply chain operations of the retail industry – two work for retail companies in a supply chain department or sub-unit, and the other three are employed by

supply chain or logistics companies, with a specific focus area in retail. The average (mean) tenure of participants in the retail industry was approximately 25 years. No one below a senior vice president position was interviewed. Mean sales of the companies for which financial information is available, over the time frame considered (1984-2003) ranged from $106M to $29B. See Table 5.1 below for a listing of retail industry groupings and title descriptions of the interviewees.

Table 5.1 – Interviewee Descriptions

Industry area	Number	Example titles
Retailer	7*	Chairman, CEO, SVP, Director,
Supply chain	5	Chief Supply Chain Officer, SVP
Consumer product	5	Chairman, CEO, President

* This number includes 2 interviewees who worked in the supply chain area of retail companies

The content of the interview protocol includes both general transformation issues as well as more specific retail industry considerations. All interviews began with the question: "How would you define transformation?" the purpose of which was to set the tenor of the discussion and to establish certain definition conditions with which the interviewees identified. After discussion of general transformation issues and questions, such as definition, outcomes, causes, and other generalizable factors, many of the conversations turned to specific examples of large-scale transformation that the interviewees had experienced professionally. If time allowed, specific questions about the retail industry were asked in addition to the more general transformation questions.

The questions asked during the interviews captured executives' insights about several pieces of the Transformation Model (see Chapter 3). Discussions included experiences and beliefs about misalignment forces, initiation of transformation, multiple

aspects of transformation processes, and several measures of transformation outcomes. Much of the discussion on results in the next chapter details what these observations were and how they relate back to the Model. The questions in the interview protocol (see Appendix B.1) were designed to elicit the observations of the interviewees within the categories defined by the Transformation Model.

As discussed in greater depth below, the insights gathered from the interviews relate directly to many of the management questions of interest in this study. Many of the most salient discussions were focused around conclusions that the interviewees had drawn about the importance of multiple leadership qualities. In addition, the lack of actionable, measurable factors such as plans, procedures and goals were commonly mentioned to be an issue with long-term change processes. These observations from in-the-field experience are invaluable in forming an accurate model to empirically study transformation processes, with the ultimate goal of providing executives and managers with more knowledge with which to design effective transformations.

5.2.2 Surveys

A perceptual survey was designed in order to measure the internal process factors identified in the Transformation Model, and their relationships to one another. The survey allowed for statistically-based analysis of proposed relationships between several variables, and provided a large enough sample from which to draw valid conclusions. The survey was in large part informed by some of the interview findings. The surveys were treated as quantitative data, based on the Likert-scale data collected, and following in the tradition of psychology and management research that frequently employs such techniques. The full survey is available for reference in Appendix B.3.

The purpose of the survey of retail executives was to test the relationships hypothesized in the Transformation Model. Because of the individual nature of the survey questions, this is a good way to understand the perceptions of people involved in a multi-period process. The scope of transformation under investigation here was the kind that engendered radical shifts in behavior, work, and perceptions of tasks, as well as the organization as a whole. Thus, measuring the actual perceptions of the people involved was the most effective way of capturing the variables in question (Fink, 1995b; Frey & Oishi, 1995). These individual perceptions are then aggregated to measure organizational-level behavior and outcomes. This survey was developed because no existing instrument was found that measured the factors discussed here.

The categories of the survey are based on the Transformation Model and the related hypotheses about the process factors, in which several factors are proposed to affect the outcomes of the transformation, through a partially mediating factor of control mode. Other researchers who have attempted to measure control mode have found several problems with developing an instrument. Based on these previous findings (Feigh, Pritchett, Jacko, & Denq, 2005; Stanton, Ashleigh, Roberts, & Xu, 2001), the author chose to ask respondents directly about the decision-making autonomy they felt during the transformation process (Question 6), as well as about the individual sub-factors that have been theorized as part of the establishment of different control modes in the context of disruptive, uncertain change processes. The individual questions within the survey categories were generally developed based on previous observations made by the interviewees. The list below provides in depth explanation of the survey sections.

- General transformation questions:
    - These set the stage for the respondent. In addition, several descriptive measures are included in this section.
- Goals:
    - This section asks about number of goals, goals per multiple stages of the process, and perception of the appropriateness and clarity of the goals.
- Plans and procedures:
    - The questions in this section are focused on availability of plans, and clarity and flexibility of plans provided during the transformation process.
- Temporal elements:
    - These questions are all related to the notion of time available to make the required changes.
- Employee involvement:
    - This section measures the employees' (respondents) perception of their involvement in the design and process of transformation.
    - These questions were not used in the final statistical analyses.
- Leadership questions:
    - Questions about the communication, vision and support provided by the leadership during the change process are included in this section.
- Outcome questions:
    - This section includes three perceptual measures of success of the transformation. There are additional qualitative questions here that help provide some background and insight into the organizational outcomes of transformation.
- Professional questions:
    - These were used for demographic and descriptive purposes as well as to help sort through and clean the data based on respondents' answers to questions about company name, sales levels last fiscal year, and position within the company.

As evidenced by the categories of the survey, the questions were designed to capture perceptions about the transformation process, as set out in the Transformation Model (see Chapter 3) and the accompanying hypotheses. Specifically, the survey questions were focused on the Integrated Process Model (Figure 3.7), which is a sub-model within the more comprehensive Transformation Model (Figure 3.8). The specific questions in each category were intended (and subsequently shown) to capture perceptions about multiple aspects of time, goals, plans, and leadership elements in order to test the hypotheses. Chapter 6 discusses in much greater depth the findings of the survey and how those findings, based on the questions asked, relate back to the Model and its hypotheses.

The survey took approximately 15-20 minutes to complete, and all questions were optional. The online tool used to create and house the survey, Zoomerang, Inc., allowed for the respondents to complete the instrument in installments, saving the work per session with the ability to return later to complete the instrument. The decision to include this feature was explicit, based on the understanding that this would encourage more complete responses. Nonetheless, there were several incomplete responses, of surveys that were begun and not finished. In addition, the respondents that were targeted through direct email by this author were also provided with the ability to see aggregate results of all other respondents at the end of completing the instrument.

The target survey respondents were executive-level employees of the corporate operations of retail companies. This did not include floor or store managers, as the survey was concerned with organizational-level strategic directions affected by a large scale, disruptive organizational change. In retail, there is a distinct difference between

those on the "corporate" or "headquarters" side of the business and those on the front line, involved in the operations of the retail store locations.

The lists of potential respondents were obtained from two sources. First, collaboration with a large retail industry trade association resulted in sharing of the list of members and their colleagues from the association with the researcher. This list included names, email addresses, company names and titles of 2500 individuals, less than 10% of which did not include valid email addresses. The researcher purchased the second source for sample respondents from the company used to create the online survey, Zoomerang, Inc. This list included 500 potential respondents, though the names, email addresses, and companies of the individual respondents were not provided to the researcher. Rather, the survey company invited the respondents to complete the survey directly, from their list of certified potential survey participants. Final sample sizes, response rates and the criteria used for inclusion of data in the final analyses are included in the Survey Results section in Chapter 6.

Several iterations of the survey were created during development, drawing on the feedback of thesis committee members, as well as other practitioners and researchers. Several of the interviewees agreed to provide feedback on early versions of the survey and were helpful in providing pre-test and pilot test responses of the survey to ensure readability, comprehension and certain types of internal validity. Non-financial incentives were provided to the respondents, as well, in an attempt to increase response rates. These incentives included providing all participants and their organizations with aggregate results of the survey and other related data collection and analysis, and a real-time view into peer comparisons while taking the survey online.

The survey was made available to respondents both online and in paper, in order to increase the levels of response. Confidentiality and security of identifiable information were ensured. The Institutional Review Board of Georgia Tech reviewed and approved the protocol in compliance with all institutional, federal, and state guidelines. The official Principal Investigator of the survey, in accordance with Georgia Tech regulations about faculty status of Pis, was listed as William B. Rouse, PhD, Executive Director of the Tennenbaum Institute, Georgia Institute of Technology, the chair of this thesis committee and the author's advisor.

Companies represented by the respondents targeted from the retail trade association's lists were in the medium to large sector of the industry – with sales over at least $300M per fiscal year. The companies that were represented in the list bought from Zoomerang included a much larger variation in the range of size, but as discussed below, only those that made the $1M sales threshold were included in this analysis. Up to several hundred million dollars in sales is still considered a small retail company, but given the need for a large enough sample to provide statistical validity for analysis, the decision was made to include these smaller companies as well.

5.3 Assessment and Validation of Methods

All data collection techniques and their associated analyses result in certain amounts of variance in the variables and relationships under evaluation. Both the qualitative and empirical methods used in this research have inherent issues related to how to most accurately collect the data and analyze them. Both methods were conducted according to accepted methodologies, guarding against any of the increased sources of

variance inherent in the research design. The specifics of these considerations for both interviews and surveys and their treatment in this research are discussed below.

5.3.1 Interviews

Interviews, as a subset of qualitative research, can result in large variances in terms of the data they provide and in terms of the analyses of those data and subsequent conclusions that can be drawn. The best way to deal with these concerns is to implement a well-defined protocol to follow, and to do it consistently so as to ensure against large variances between the answers and their interpretations across multiple respondents. Because the data collected from interviews are inherently perceptual and personal, the researcher must ensure development of the protocol according to best practices and to follow the protocol as closely as possible (Camic, Rhodes, & Yardley, 2003; Yin, 2003).

The interviews were semi-structured, based on a protocol that was developed over several iterations with participants from other industries who had experience with transformation. In addition, the thesis committee reviewed the protocol and made suggestions for improvement and clarification. Several practice interviews were concurrently conducted to test the flow and relevance of the questions. The practice interviews were completed with executives in different industries, as well as a few retail executives whose responses are not counted as part of the final set of 15. The interview process, from protocol development to execution and analysis was conducted in line with accepted qualitative research methods designs (Creswell, 2003; Seidman, 1998; Silverman, 2001; Yin, 2003). The interviewer allowed the flow and order of the questions to be partially determined by the comfort level and style of the interviewee.

Most participants were very forthcoming about what they were accessing in their memory and experiences as examples with which to answer the questions.

There was some variation in the length of the interviews as well as in the type – in person or over the phone. The longer interviews provided more in-depth discussion and analysis of specific retail industry change situations and personal examples, whereas the shorter interviews did not address retail-industry specific forces for change, or personal examples. All interviews covered the basic level-setting and definition of transformation questions, as well as questions about internal organizational processes, and leadership involvement. Therefore, the variation in time length did not cause any significant lack of data or variability in the types of responses and analyses that were derived from each session.

The variation in type of interview was also treated as rigorously as possible. When possible, the interviews were conducted in person, though several had to be conducted over the phone. If the interview was conducted in person, it was audio recorded with the permission of the interviewee so as to provide a full account of all questions and responses. All participants agreed to be taped, and several hours of interviews were finally recorded. If the interview took place on the phone, the researcher took copious notes during the session to ensure that the answers were recorded as accurately as possible. Because the interviewer had already conducted a series of practice interviews and in person sessions, she was aware of the words that needed capture as the respondents answered questions and was careful to write these words down as they were mentioned. A form of shorthand was used in order to facilitate quick transcription during the phone interviews. Immediately following all interviews, the

notes or recording were transcribed, and all individual transcripts were used to create concept maps of the interviews, using the Inspiration ™ software. Table 5.2 shows the breakdown of numbers of interviews conducted over the phone and in person, and their lengths. Further analysis based on type of interview is included in the results discussion in Chapter 6.

Table 5.2 – Interview Length and Type

		Number	Percentage
Type	In person	7	47%
	Over the phone	8	53%
Length	Half an hour	2	13%
	One hour	10	67%
	Over one hour	3	20%

Concept mapping software and techniques are used frequently in social science research to track and link related concepts that may not be articulated as such during conversations and other forms of primary, qualitative research. This is a methodology that allows generally loosely-understood, qualitative data to be mapped and modeled in a way that provides more structure and comparison points, and to articulate relationships among different ideas (Coffey, Hoffman, Canas, & Ford, 2002; Gordon, 2000; Hoffman, Shadbolt, Burton, & Klein, 1995). Several interviews produced multiple concept maps, according to the extent of the discussion. The description of results from the maps and the inclusion of select concept maps is discussed more at length in the following chapter, in the section on interview analyses.

5.3.2 Surveys

Surveys are one of the best ways of collecting individual, perceptual data that help explain and test specific directional hypotheses between variables in a model. Nonetheless, there are certain considerations that must be taken into account in the development and dissemination of surveys, in order to provide the most reliable and valid data. According to classic survey techniques and methodology (Creswell, 2003; Fink, 1995a; Malhotra, 2004) the questions asked were measured along a five-point Likert scale. The five-point scale (rather than three or seven point) was chosen according to the need for a balanced measure providing fine enough delineations between responses, but not so many choices that statistically and practically there is little differentiation between the response choices. The majority of the responses were measured on a scale that went from 0-20% of the time, in equal intervals, to 81-100% of the time, providing both interval and scale data. The full survey is included in Appendix B.3 for reference.

The survey was written and finalized over several iterations with multiple pilot and pre-test respondents. The categories and intent of the survey were driven by the Model and its proposed relationships between different internal process factors (time, goals, plans, leadership), and transformation outcomes. Individual questions were often informed by the interview findings. These techniques – of using the theory development and qualitative data – to inform the development of the survey help guard against concerns about content and face validity. Because the interviewees were executives in the same field as the managers who responded to the survey, their context was similar, and thus interpretation of questions was expected to be consistent across the samples.

In order to verify that the questions accurately captured the concepts and factors theorized, principal component analysis was used to analyze the responses. Principal component analysis (PCA) is a subset of factor analysis techniques, based on correlation matrices. This technique extracts the maximum amount of variance for each calculated factor, providing the researcher with a solution of factors that are highly correlated (Kerlinger, 1973; Malhotra, 2004). The most common and appropriate use of PCA is to reduce the number of variables included in subsequent analyses (StatSoft, 2005). Furthermore, the difference between principal component analysis and principal factor analysis is that the former assumes that all the variability in the items should be used in the analyses, whereas the latter technique only uses the variability in an item that it might have in common with other items (StatSoft, 2005). For the present survey, PCA was the most relevant technique to use in order to consolidate the questions in a particular area to as few factors as possible, and so as to not lose any of the important variability indicated by the responses. The aggregated, principal factors are then used in the hypotheses testing analysis.

Before final dissemination of the survey, a PCA was conducted on the pilot test data as well, so that any major changes could be made before distribution of the survey to the final sample. Several pre-test rounds were conducted, with the final one sent to all thesis committee members, select interviewees who had agreed to act as a beta sample, and other colleagues with familiarity of either the subject matter and/or survey methodology. The PCA on the pilot test confirmed the anticipated factor loadings.

In tandem with the principal component analysis, a review of each question was made, in order to determine whether it would be used to test the model, provide

descriptive statistics of the survey respondents, or provide additional qualitative information. The descriptive questions were also used to conduct testing between sample respondents and non-sample surveys, as well as some internal reliability testing for the samples used. Descriptive statistics for relevant questions are included in the next chapter, which focuses on the data collection results and analyses.

Before the principal component analysis for final sample results could be conducted, several actual coding changes to the data had to be performed. Appendix B.4 includes a list of the questions that had to be coded post-hoc in order to use the responses in the final statistical analysis. Other than these changes, all questions were measured on a three- or five-point Likert scale, most often with a higher number measuring a more positive perception or higher level of the factor/variable being measured.

The survey collected data on three different measures of "success of transformation", each of which is used in the statistical analysis as a dependent variable, making the analysis multivariate in nature. The three transformation success measures can be categorized as follows:

- Realization of intended transformation outcomes (Q.42)
- Overall, general perception of success of transformation (Q.45)
- Desirability of outcomes – A collapsed measure, analyzed with principal component analysis that evaluates strategy, individual activities, and culture changes on their level of desirability according to the respondent. (Q.46-48 combined to give one measure of "Desirability of Outcomes")

Two questions asked about how often there were different stages/phases set forth during the overall, long-term transformation process (Q.17 and 24). The responses on these two questions were used as a test of internal reliability. In addition, the repetition of this question served as a reminder to the survey respondent about what happened and

how it affected them, so as to mitigate against concerns about retrospective accounts of experiences.

- Of the 72, the total number of different answers to the two questions = 32 (44%)
- Of these, 19 were only one number away (in either direction) from the previous answer (26.4 % of total, 59.4 % of "different answer set")
- 12 of the "different answer set" were 2 numbers away from the previous response (16.7% of total, 37.5% of the subset)
- No responses were three away from the previous answer
- Only 1 was 4 away from the previous answer (1.4% of total, 3% of subset)
- Correlation between the two sets of answers was .67

All of these figures indicate that the internal reliability is high, and that there is a high level of consistency in the answers of the respondents. The descriptive statistics of the answers to these questions are included below in Chapter 6.

5.3.3 Hypotheses Testing

For each of the directional hypothesis, certain factors were used as the independent variable to see if there was in fact a significant relationship between the explanatory variables and the dependent variables. Because several measures of success of transformation were included in the survey, three different models were used to measure the success of the transformation process.

All of the hypotheses propose that the levels of particular antecedent factors influence the success of transformation through the partial mediator of control mode. The survey and its reported data treat the concept of control mode in two ways. First, we can assume the level of control mode based on the level of the antecedent factors. By definition and previous empirical testing (Feigh et al., 2005; Stanton et al., 2001) (as well as theoretical and intuitive logic), the higher the reported levels of the antecedent factors,

the higher the level of effective control, as evaluated on the control mode continuum. In addition, however, the survey explicitly asks about "decision making authority" (Q.6), which can also be interpreted to be a measure of control mode, in the way that we are using it to imply autonomy and strategic thinking during uncertain processes in this research.

Additional factors and questions included in the survey, though not included in the final hypotheses testing, are both theoretically and practically interesting, and provide a more complete picture of the various elements included in a large-scale organizational change process. Despite larger data collection from the multiple survey questions of general interest, only those data points that are specific to the focus of transformation processes and their internal variables related to cognitive and leadership factors are those that have been pulled out for focus and evaluation here. The additional questions and variables included in the survey will be used for future testing of additional relationships either theorized here or developed in the future through more primary research and conceptual analysis and development. These additional variables actually provide the genesis for future empirical studies.

In order to gain a complete picture of the directional nature of the hypotheses that were derived from the overall Transformation Model and their empirical testing based on survey data, the complete list is presented here in Table 5.3:

Table 5.3: Hypotheses to be Tested

Independent variable	Hypothesis number	Direction	Measurement factor/variable
Time available	1	Positive	PCA time (Q. 25-28)
Number of goals	2a	Positive	Q. 14
Clarity of goals	2b	Positive	PCA goals (Q. 11-13)
Availability of plans	3a	Positive	PCA plans (Q. 16, 18, 21, 23)
Clarity of plans	3b	Positive	Q. 19
Flexibility of plans	3c	Positive	Q. 20
Clarity of vision	4a	Positive	Q. 35
Leadership communication	4b	Positive	PCA leadership communication (Q. 35 & 39)
Leadership commitment/support	4c	Positive	PCA leadership support (Q. 36 & 38)

Based on the Transformation Model and its integrated model of process factors presented above (Chapter 3), Figure 5.1 provides the hypotheses as represented in the original model.

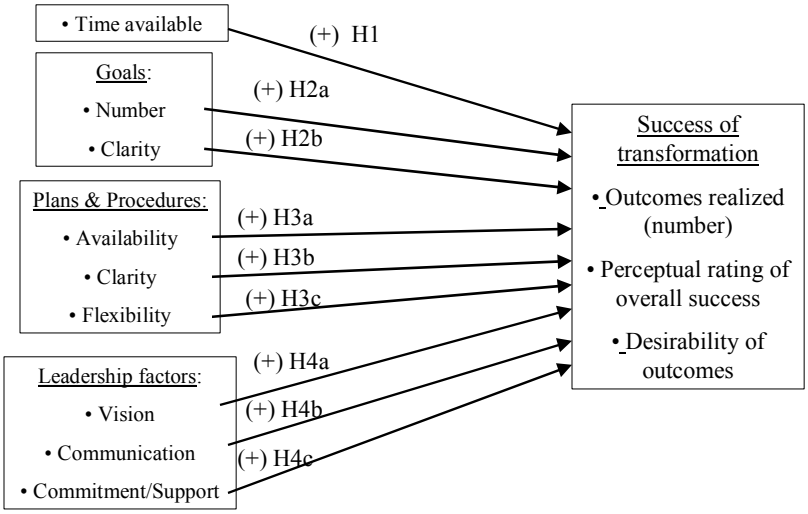


Figure 5.1: Testing of Hypotheses

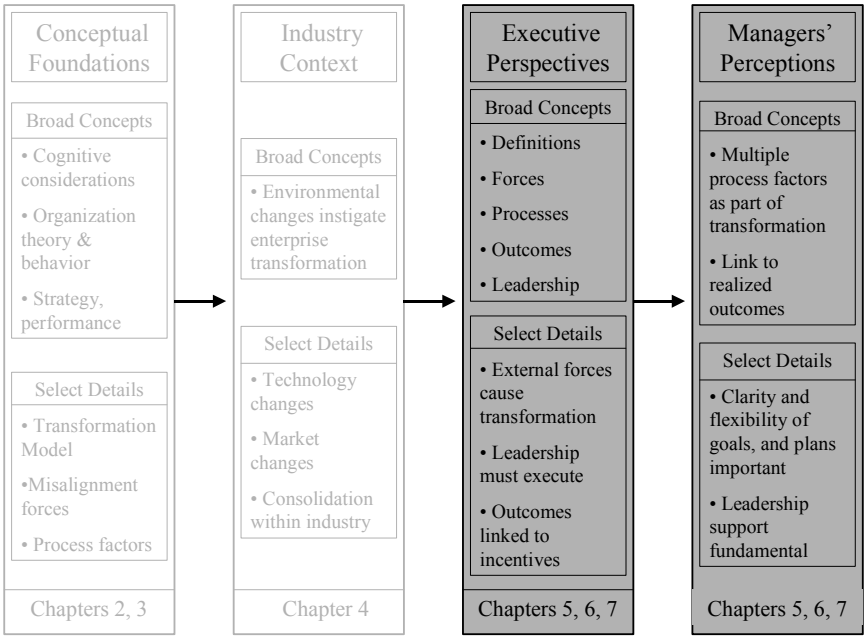
It is worth noting here that the "availability of plans" factor is directly related to the notion of competence in the Hollnagel COCOM, and could be interpreted as being a measure of the level of competence, which also helps us to interpolate the level of control from the level of this factor. The results of the statistical tests of all hypotheses are presented in the following chapter, along with discussions of the significance and interpretation of the results. The three outcome variables were used to create three models that were tested against the explanatory variables.

5.4 Conclusions

This chapter has set forth a clear motivation for the choice of research design in this study. The use of mixed methods allows for a comprehensive analysis of many of the issues that face complex enterprises during situations of long term, uncertain and risky transformation. The primary research conducted through a series of executive interviews provided knowledge about experiences with and perceptions about the important aspects of transformation processes. In addition, this research helped inform the creation of a survey that in turn provided in depth information about multiple transformation process factors. We are able to analyze these data with well-tested quantitative statistical techniques that will be discussed in depth in the subsequent chapter. The research design is appropriate not only to the academic research conducted here that contributes to multiple streams of scholarly tradition, but also to the management practitioners who can take away immediate lessons and knowledge from the research here.

CHAPTER 6 – RESULTS AND DISCUSSION

This chapter presents the complete results of the data analyses conducted on the interviews and survey responses. As described in previous chapters, there were 15 interviews performed with retail industry executives, which provided qualitative data that were used in an iterative way to help with the Model development. Interview findings were also used to inform the creation of several survey questions. Accepted techniques were used to analyze the results from both data collection methods, and the findings provide insight into experiences relevant to the questions under study and the relationships proposed in the Model. The Thesis Flow Map included here demonstrates that in presenting the results of the data collection methods, we are addressing both executive perspectives as well as managers' perceptions, within the context of the overall, multi-part research study.



6.1 Interview Results and Analysis

Many of the interviewees delivered very prescriptive and normative statements. The method of asking the questions did not waver from one interview to another, yet, as expected with qualitative research, the answers varied widely in terms of how the participant interpreted what the interviewer was looking for. I conducted all the interviews, so consistency in following the protocol was not an issue. Furthermore, the protocol had been tested and practiced with non-retail executives over several months prior to the beginning of the focus on the retail industry, providing a high level of comfort with the protocol. I developed, tested, practiced, and conducted the protocol as well as transcribed and mapped the conversations, which provides consistency throughout the process.

As mentioned in the previous chapter, concept mapping techniques provide a systematic way of describing and understanding qualitative data – allowing for the use of the findings to inform both the Model development as well as the creation of several survey questions. Individual maps were created for all of the interviews, though some produced multiple maps – about general transformation issues and about retail-specific issues. Also of note is that only 14 of the 15 interviews produced overall (general) transformation maps, as one of the interviewees only discussed their perspectives about retail-specific transformation issues. Eight of the 15 interviews produced retail-specific maps. All examples of individual concept maps are included here in Appendix C.1 – thirteen maps that relate to general transformation factors and eight maps that relate to retail-specific transformation concepts. (Only 13 of the 14 interviews that discussed general transformation concepts were mapped as the missing one lasted over three hours

and was too far-ranging to map, but the counts of words and concepts is included in the word count analyses below, based on the full recorded and transcribed transcript of the interview.) The transcripts of all maps have been carefully reviewed, and the fundamental concepts are included in the aggregated maps and word counts presented in detail below. Creation and analysis of the concept maps allows us to isolate key concepts of many of the variables included in the Transformation Model developed as part of the current research (see Chapter 3). In addition, word count techniques contribute to the value of qualitative data by providing a sense of the nature of the data and findings. Counting techniques provide a measurable way of using qualitative data to inform the creation of hypotheses during the conceptual development process (Silverman, 2001), which was one of the goals of the qualitative research in this case.

The individual concept maps led to a detailed word count analysis. Examination of the maps led to the creation of relevant categories of words according to their usage by the interviewees. The full list of word mentions is included here in Appendix C.3 – that is a count of each relevant word per category across all 14 interviews. The individual words used by the interviewees were categorized on the following five dimensions: definitions, outcomes and measurements, process factors, forces that cause the need for transformation (misalignment forces in the parlance of this study), and leadership factors. These clearly are those groups that have been discussed and included in the Model, and the relationship hypotheses, subsequently tested with the surveys. The individual word counts of each category revealed some aggregate groupings. These groupings and their respective counts are analyzed three different ways. The first is a count of the number of people who mentioned a word in the sub-category (per person), and the second is a count

of the total number of mentions in that category. Tables 6.1 and 6.2 below reveal the two different counts per category and sub-category (these tables represent 14 of the 15 interviews).

Table 6.1 – Per person counts in each category

Definition	**#**	**Outcomes**	**#**	**Forces**	**#**	**Internal Process**	**#**	**Leadership**	**#**
How	4	Financial	6	External	10	Goals/ Plans/ Timing	7	Vision/ Strategy	8
What	10	Non-Financial	5	Internal	3	Cultural aspects	7	Values	7
								Execution	12
TOTALS	**14**		**11**		**13**		**14**		**27**

Table 6.2 – Total number of mentions in each category

Definition	**#**	**Outcomes**	**#**	**Forces**	**#**	**Internal Process**	**#**	**Leadership**	**#**
How	5	Financial	6	External	23	Goals/ Plans/ Timing	10	Vision/ Strategy	11
What	12	Non-Financial	5	Internal	4	Cultural aspects	11	Values	13
								Execution	120
TOTALS	**17**		**11**		**27**		**21**		**44**

Note that the use of "external" to describe misalignment forces refers to external to the organization, not the industry in question. These types of forces, as discussed in Chapter 2 under the Misalignment Forces section and typology, are those that exist in the environment in which an organization operates, and can be within an industry or outside the industry, such as macro-economic forces. However, most of the external forces discussed in the interviews and catalogued in the Misalignment Forces Typology in Chapter 2 are those that exist within an industry, outside of the control of an individual organization.

We can see from the two tables above, representing different ways of counting the total number of mentions of relevant transformation factors, that there were some clear differences in the categories that received greater attention than others. The misalignment forces category elicited many descriptions by most of the interviewees, including multiple words in the sub-categories by several of the executives. Also evident in the forces category is the clear bias in favor of describing and focusing on external forces. The leadership category also deserves special mention here, as all of the sub-categories elicited mention by several interviewees, with execution representing almost all of the executives. Furthermore, several words were used to describe the different aspects of the leadership sub-categories. We can also see that the internal process category is mentioned by all interviewees and there is an even split between the people who focused on the goals/plans/timing aspect of the process and those who focused on the cultural aspects of the process. Appendix C.2 lists all the specific words that make up each of the sub-categories and the number of times each word was mentioned across all interviews.

A second method of analyzing the word counts produced by the interviews was in examining the word counts of phone interviews versus in person interviews. This was done in order to ensure against validity and reliability concerns across the two methods of collecting this qualitative data. Tables 6.3 and 6.4 provide the category word counts for these two groups of interviews. These tables are constructed based on the count of total mentions, rather than the individual (per person) counts (see Table 6.2).

Table 6.3 – Counts of word mentions per category for in person interviews

Definition	#	Outcomes	#	Forces	#	Internal Process	#	Leadership	#
How	4	Financial	2	External	12	Goals/ Plans/ Timing	2	Vision/ Strategy	7
What	4	Non-Financial	3	Internal	1	Cultural aspects	6	Values	5
								Execution	8
TOTALS	**8**		**5**		**13**		**8**		**20**

Table 6.4 – Counts of word mentions per category for phone interviews

Definition	#	Outcomes	#	Forces	#	Internal Process	#	Leadership	#
How	1	Financial	4	External	11	Goals/ Plans/ Timing	8	Vision/ Strategy	4
What	8	Non-Financial	2	Internal	3	Cultural aspects	5	Values	8
								Execution	12
TOTALS	**9**		**6**		**14**		**13**		**24**

These tables reveal no significant differences across the method of interview – phone or in person. There are similar groupings across all categories for the two kinds of techniques used, and the sub-categories are all represented in both groups of interviewees. Thus, there is strong evidence that the method of interview was not a factor in the variance of the qualitative data gathered.

The last method of analyzing the word counts was performed on a split between the largest and smallest companies, as measured by total sales, represented by the interviewees. Of the fourteen interviews used for the detailed word counts of general transformation issues, two for the executives' companies were not included in the sales analysis. One of these companies was private, so no sales information is available. The other company is not included because the interviewee had recently changed positions to this company as a retail executive consultant, but the topic of the interview with this

person was focused on his 25 years of experience working directly for two retail companies in executive positions. Therefore, the sales of his present company are excluded from this analysis. The tables below, 6.5 and 6.6, include 12 total interviews, with the counts based on total mentions in categories, split by high and low sales levels, based on a median split at $2.95B average sales over the period in question (1984-2003). Because the grouping into high and low sales levels was performed on the median value for the group, the number of companies in each category is the same (six). Table 6.7, of the two interviews not included in the sales analysis, is included to show that the totals match across all interviews.

Table 6.5 – Counts of word mentions per category for high sales group
Mean sales of companies over 1984-2003 range from $5.98B to $29.17B

Definition	**#**	**Outcomes**	**#**	**Forces**	**#**	**Internal Process**	**#**	**Leadership**	**#**
How	3	Financial	2	External	15	Goals/ Plans/ Timing	5	Vision/ Strategy	3
What	7	Non-Financial	2	Internal	2	Cultural aspects	5	Values	6
								Execution	6
TOTALS	**10**		**4**		**17**		**10**		**15**

Table 6.6 – Counts of word mentions per category for low sales group
Mean sales of companies over 1984-2003 range from $106M to $2.95B

Definition	**#**	**Outcomes**	**#**	**Forces**	**#**	**Internal Process**	**#**	**Leadership**	**#**
How	2	Financial	4	External	2	Goals/ Plans/ Timing	3	Vision/ Strategy	6
What	4	Non-Financial	3	Internal	2	Cultural aspects	4	Values	6
								Execution	9
TOTALS	**6**		**7**		**4**		**7**		**21**

Table 6.7 – Counts of word mentions per category for missing sales group

Definition	#	Outcomes	#	Forces	#	Internal Process	#	Leadership	#
How	0	Financial	0	External	6	Goals/ Plans/ Timing	2	Vision/ Strategy	2
What	1	Non-Financial	0	Internal	0	Cultural aspects	2	Values	1
								Execution	5
TOTALS	**1**		**0**		**6**		**4**		**8**

The total word counts across all interviewees according to sales levels also reveal general agreement between the two groups in terms of the focus of the discussion. The only real noticeable difference between the high and low sales groups is in the discussion of misalignment forces. The high sales group was generally more focused on external forces, a finding that makes sense given the public and highly visible nature of the companies these interviewees represent.

The grouping of words into categories was used to create aggregate concept maps, three of which are included in Appendix C.3 – one showing the relationships related to forces that cause transformation, and the definitions of transformation; the second map representing the variables related to transformation processes; and the third map constructed of the eight interviews during which retail-specific ideas were discussed. The detailed word count tables provide us with a qualitative, practitioner-based validation of the concepts discussed in the development of the Transformation Model and the hypotheses. Also, as mentioned previously, the findings from the interviews, represented in the concept maps, helped to inform the creation of the surveys.

There was a word count analysis performed on the retail-specific interviews, of which there were eight. These interviews were most often those that lasted over one hour and where the interviewee specifically discussed their insights into the forces, effects, and

other specific transformation issues relevant to the retail industry. Appendix C.1 includes all of the retail specific individual concept maps, Appendix C.2 includes a word count table for the retail interviews, and Appendix C.3 includes an aggregate map representing the intersection of all eight of these interviews. One example of a retail specific concept map is included below, in Figure 6.1. We see a good deal of intersection and agreement among the executives in terms of the forces that have caused transformation in the sector over the past two decades, as well as in the effects that these changes have had on individual organizations.

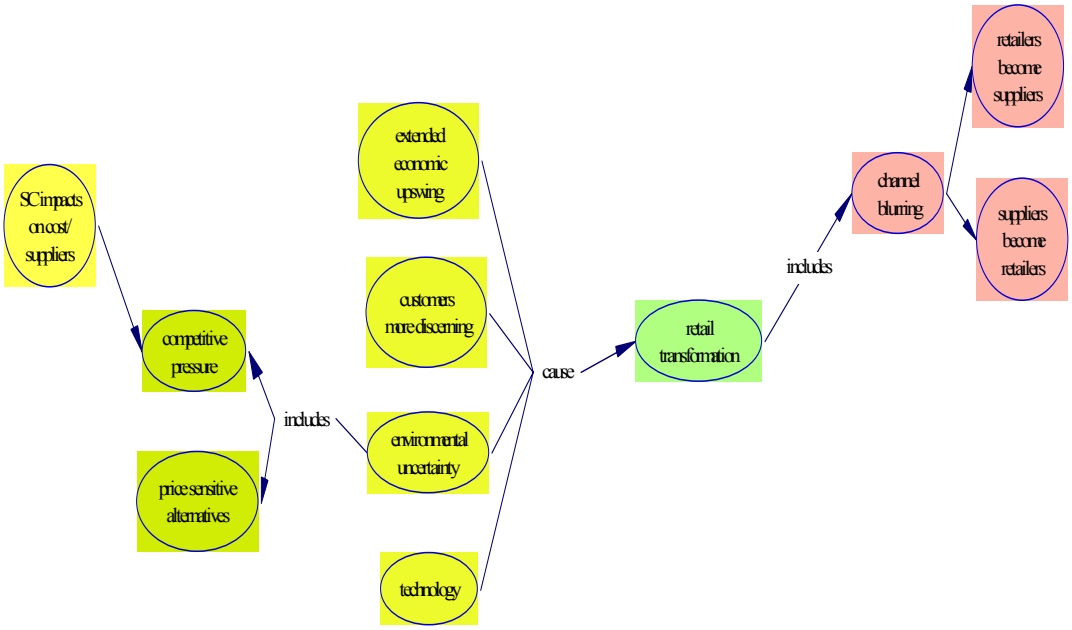


Figure 6.1: Example of Retail-Specific Concept Map

Evaluation of the maps displays the sequence of connections and interactions between various transformation concepts discussed in the interviews. Often, the connections were not clear to the interviewees until they were explicitly explored during

the conversation. Measurement of these concepts helps both academics and practitioners understand which factors are related to which outcomes, and to each other internally. This understanding can help create a more successful design of a normally uncertain, risky and messy process.

These analyses, including word count and mapping techniques, allow for insight into whether the data gathered were similar to the concepts culled from the theoretical foundations of the Transformation Model. Many of the insights gleaned from the interviews were used to add detail to the descriptions of factors in the Model, as well as to add certain questions to the survey. Figure 6.2 below and its accompanying discussion provide a representation of the links between the interview findings and the development of survey categories and their respective questions. Although previous research has discussed certain qualitative factors of transformation processes specific to leadership qualities, the literature review and interviews showed that there is a gap in understanding concepts about control-related and cognitive factors of uncertain, large-scale transformation situations. The findings from the interviews reinforce the need for the identification and measurement of these factors. Among the concepts validated by the interviews, all of which imply the need for more empirical testing are the following:

- Transformation is specifically different from other concepts of change, such as organic and evolutionary growth, or incremental, business process improvements.
    - It includes cultural, structural, strategic and/or operational changes.
- There are several external forces that cause the need for organizations to take on transformation. These are represented in the Misalignment Forces Typology (see Chapter 2).
    - There was significant agreement among interviewee responses about forces that cause the need for change and the theoretical research.

- The goals of the transformation process should be directly related to the outcomes measured. Outcomes should be measured and defined at multiple intervals along a long term, multi-stage transformation process.
- Leadership must provide vision, commitment, examples, and energy to create enthusiasm within the entire organization.
- Leadership must also provide concrete goals, metrics, and accountability in order to affect the changes that are sought.
- Cultural readiness and cultural changes are instrumental parts of the successful implementation of transformation processes.
    - This is related to scope of change, as well as the ideas about internal resistance to change characteristics, discussed throughout Chapter 2.

In addition to providing a wealth of qualitative data, the interviews and their mapping also provided much direction and background for the creation of the survey. Many of the interviewees acted as sounding boards and early providers of feedback during the development of the survey. Having set the stage with the interviewees about the areas of interest and the definitions under consideration, their responses on the development and relevance of the survey helped ensure a more valid and robust instrument. Several quotes from the interviews are included in Appendix C.4.

The findings from the interviews that informed the survey development were most apparent in the areas of leadership and outcomes, though also in goals and plans. Many of the process factors that were mentioned by the interviewees had been identified through the Model development and extant research review. However, the inclusion of specific execution factors of leadership had not been previously identified. Some of these factors catalyzed the creation of several questions about leadership that were more specific to the ongoing commitment, actions, and support exhibited by the leadership during transformation processes. Furthermore, the discussions about the need for

connection between outcome and measurement factors and articulated goals of the transformation process led to the creation of additional questions in the survey about these factors. In both the goals and plans areas, the interviewees identified additional aspects (clarity and flexibility) that had not been included based on the research review and theory development. Figure 6.2 provides a visual representation of the categories of the survey that were directly informed and augmented by the interview findings.

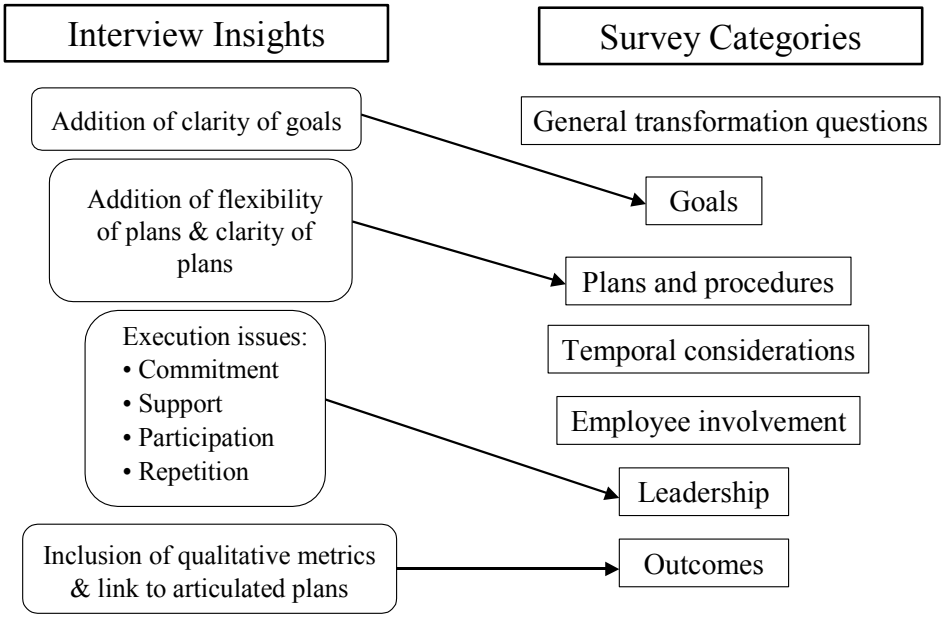


Figure 6.2: Link Between Interview and Survey

6.2 Survey Results and Analysis

The survey was distributed to retail executives in multiple companies and the final sample yielded 72 usable responses. Following classic survey analysis techniques, the sample of 72 was analyzed according to the theoretical hypotheses developed for the Transformation Model. The hypotheses, and thus relationships tested, were specific to

the Integrated Process Model, which represents a more detailed part of the complete Transformation Model. For sake of clarity and reference, the hypotheses are presented (again) in the table below, repeated from Chapter 5.

Table 5.3: Hypotheses to be tested

Independent variable	Hypothesis number	Direction	Measurement factor/variable
Time available	1	Positive	PCA time (Q. 25-28)
Number of goals	2	Positive	Q. 14
Clarity of goals	2b	Positive	PCA goals (Q. 11-13)
Availability of plans	3a	Positive	PCA plans (Q. 16, 18, 21, 23)
Clarity of plans	3b	Positive	Q. 19
Flexibility of plans	3c	Positive	Q. 20
Clarity of vision	4a	Positive	Q. 35
Leadership communication	4b	Positive	PCA leadership communication (Q. 35 & 39)
Leadership commitment/support	4c	Positive	PCA leadership support (Q. 36 & 38)

6.2.1 Cleaning the Data

In order to analyze the data gathered from the survey, several iterations of initial cleaning and coding of the responses were conducted. To reiterate, there were two major sources of data for the surveys:

- A sample collected from a purchase of respondents from the Zoomerang website. The survey company was able to define two major attributes for sending of the survey to respondents in their panel – retail industry, and director level and above recipient.
    - The company sent 500 invitations to respond to the surveys.
    - 149 completed surveys were filled out (29.8% response rate)
- A master list of the members and other executives from a national retail trade association.

- The list included 2551 email addresses to which invitations were sent. The total response rate was 2%, equaling 52 completed surveys.

The total number of surveys sent out for completion was 3051 with a combined response rate of 6.6% for a total of 201 completed surveys. Of the completed surveys, several had to be eliminated from the analyses due to multiple issues. Several steps were conducted in order to clean and sort the survey responses, and conclude with a usable sample in order to test the hypotheses. The full list of these steps is included in Appendix D.1. The total number of respondents to include in final survey analyses and model testing equaled 72 – all of whom are executive level employees of retail companies that realized at least $1Million in sales last fiscal year and have experienced transformation.

As discussed in Chapter 5, principal component analysis (PCA) allows for a more parsimonious treatment of multiple variables based on the correlation matrices of chosen questions. The PCA combines multiple questions into one factor that measures the underlying construct. Careful attention to the survey questions revealed the following anticipated factors found through the final sample PCA:

- Goals – questions 11-15 all address different aspects of goals of the transformation. Three of these questions (11-13) collapse into one factor that measures clarity of goals. The sub-components of this factor include communication, consistency and reasonableness. One question measures number of goals (Q.14).
- Plans and procedures – questions 16-23 all address the plans and procedures provided to the employees during the course of the transformation process. Three primary factors are hypothesized as part of the plans/procedures factor. The first, measured with questions 16, 18, and 23 collapse to one factor defined as “availability of plans”. Question 19 measures “clarity of plans”, and question 20 measures “flexibility of plans”. The remaining questions (17, 21, and 22) all help provide more descriptive or

qualitative information around the types of plans developed as part of the transformation process.

    - An additional note is important here: PCA on the plans section revealed that the combined factor of availability of plans (provided by the organization) and question 21, which asked whether the respondent had to come up with their own plans, revealed these two factors to be orthogonal, as we would expect. If the organization does not provide the requisite plans and procedures, then the employees would have to derive their own.

- Temporal considerations – questions 25-28 are collapsed together to measure "time available". The PCA on these questions confirms that factor measurement.
- Leadership – questions 33-40 all measure qualities associated with leadership during the transformation. Several factors come out of this series of question. Question 33 measures the "clarity of the vision" presented by the leadership. Questions 35 and 39 together measure "leadership communication". Questions 36 and 38 load to measure "leadership support". Questions 34 and 37 individually provide descriptive information about the perception of leadership and the kinds of tools used by the leadership during the transformation.
- Outcomes – questions 41-48 measure the outcomes and success levels of the transformation. Several measures of "success" are included in this series of questions, all on a perceptual basis from the perspective of the survey respondent. Question 42 alone measures the number of "outcomes realized", question 45 the "perceptual rating of the overall transformation process", and questions 46-48 combine to measure the "desirability of the change outcomes".

Appendix D.2 includes all principal component analysis tables, with a short discussion about the results and the interpretation of the multiple statistics that are included in these analyses. The combination of factors resulted in more parsimonious models and use of focused variables in order to test the hypotheses.

6.2.2 Descriptive Statistics

Initial descriptive statistics were calculated for all the variables in question, both explanatory and dependent, and are presented in Table 6.9 and Table 6.10 below. Short discussion of the descriptive statistics follows each table.

Table 6.8: Descriptive Statistics for all Explanatory Variables

	Time available	Clarity of goals	Number of goals	Availability of plans	Clarity of plans	Flexibility of plans	Clarity of vision	Leadership communica-tion	Leadership support
N valid	72	72	72	72	69	71	71	72	72
missing	0	0	0	0	3	1	1	0	0
Mean	6.5466	3.6521	4.0694	5.8868	3.1594	3.1972	3.5634	5.0177	5.5087
Median	6.793	3.923	4	6.294	4	4	4	4.949	5.656
Std. Deviation	2.1558	1.7019	1.1174	1.845	1.3787	1.3796	1.471	1.6103	1.3987
Variance	4.6477	2.8963	1.2486	3.4038	1.9007	1.9034	2.164	2.593	1.9563
Minimum	1.99	-0.77	1	1.7	1	1	1	1.41	1.41
Maximum	9.97	6.03	5	8.51	5	5	5	7.07	7.07

A few things are immediately apparent from the descriptive statistics above. First, there are a few missing values for some of the explanatory variables, though the percentage and number is small enough not to cause concern in the subsequent analyses. Next, for the variables where the minimum and maximum values are not equal to one and five respectively, this is due to the final measure coming from a linear combination of the survey responses, based on principal component analysis for these factors. All of the mean and median values should be interpreted according to the ultimate range of values for that particular variable. For more detailed reference to the questions and the scales upon which they are measured, refer to the survey explanation in Chapter 5 and the full survey protocol in Appendix B.3. The variables with the highest variance values – time

available and availability of plans – are cause for some initial concern, as their variability is almost as great as the range for both values. We will see, in the explanation of the results and subsequent discussion, that neither of these variables result in significant explanation of the outcomes under testing, partially, at least, due to their high variability.

Table 6.9: Descriptive Statistics for all Dependent Variables

	Outcomes realized	Perceptual rating	Desirability of outcomes
N valid	72	72	72
missing	0	0	0
Mean	3.7639	2.4306	3.1826
Median	4	2	2.89
Std. Deviation	1.2615	1.4421	1.2848
Variance	1.5914	2.0796	1.6506
Minimum	1	1	1.73
Maximum	5	5	5.19

For all of the dependent variables, there are no missing values. The means are all consistent with expectations, though the high variance value for the second outcome measure, perceptual rating, is noticeable. The interpretation of results section and discussion below provides more insight and follow up to this observation. Lastly, it is important to note that the desirability of outcomes rating comes from a final measure derived by a linear combination of three questions, as explained in the principle component explanation in Chapter 5. Therefore, the minimum and maximum values for this factor are beyond the one to three range upon which the answers for the three questions were based.

In addition to the complete descriptive analyses of the independent variables and the dependent variables, certain statistics from several of the questions were calculated and are presented here. These questions are not included in the measurement of the

predictor variables above, but are additional questions within the survey that provided basic descriptive insights into the sample of respondents. Several of the survey questions only asked for descriptive measures and others for qualitative, or short answers from the respondents. Several of the demographic results of the final survey sample have been discussed above in this chapter, and the figures presented below are those that have been analyzed according to the nature of the question. The questions that were not used to test the model, but rather to provide additional descriptive information, and their frequency tables are included in Appendix D.3. The statistics on these questions provide rich descriptive information about the respondents and the aggregate perceptions of transformation processes. We will explore in more depth below the detailed regression analyses that test the Model relationships and hypotheses. However, the descriptive questions and their aggregate answers show us a few initial conclusions:

- The consensus on the length of transformation processes seems to fall in the range of one to three years.
- There is a fairly even split on transformations that were instigated by emergent forces and those that were begun by clear management decisions.
- There is an overwhelming sense that the transformations, despite being lengthy and difficult, were necessary. This is coupled with a majority opinion that most often, the changes produced by the transformation were in line with the overall strategy and direction of the company.
- Communication frequency seems to be primarily in the range of average or above though there is some cause for concern in that at least 16% of respondents believed that the vision was rarely or never communicated.
- Although the weight of overall leadership assessment falls in the positive range, there is still a fairly strong representation of those who assessed their leadership in the neutral to very negative range. This finding provides fodder for more

investigation into the reasons for this kind of assessment of leadership and management.

6.2.3 Regression Analyses – Hypotheses Testing

The analyses of relationships between the explanatory variables and the dependent variables of success of transformation were tested with regression techniques. Nine total hypotheses were tested across three theoretical models, each using a different outcome measure gathered in the survey data. Note that several of the explanatory variables were measured by linear combination of multiple questions, derived through principal component analysis. The three measures of transformation process success, the dependent variables, were the following:

- Number of outcomes realized
- Perceptual rating of overall transformation process success
- Desirability of realized outcomes

The survey questions that measured these outcomes, discussed above, are available for reference in the full survey, attached in Appendix B.3. The reason for analyzing the relationships between the explanatory variables and the three outcome measures with multiple models, rather than with one comprehensive multivariate regression analysis, was primarily to be able to compare responses and outcomes against each other. This analysis provides us with more statistical support of theoretical relationships and the important transformation outcome measures to investigate and understand. In addition, there is no significant explanatory power to be added to the models by combining the dependent variables into one analysis.

Classic survey analysis techniques (Creswell, 2003; Fink, 1995) recommend various forms of regression analysis for evaluating the relationships proposed and

measured through the survey questions. The measures gathered can come from single questions, or from linear combinations of multiple questions, as determined by principal component analysis. Regression analysis, in its various forms, allows for the parsing out and testing of sources of variance in predicted, or dependent variables. These sources of variation can come from one variable, or factor, or from combinations of multiple ones (Kerlinger, 1973; Pedhazur, 1997). The regression techniques used in this study include multiple regression, hierarchical regression, and forward selection regression models. The two latter methods allow for theoretical and statistical choice among a number of explanatory variables, respectively. All three techniques and their results will be discussed in turn here.

6.2.4 Full Multiple Regression Models

The first step in the analysis, as an exploratory evaluation of the significance of the explanatory variables, was to conduct full multiple regression models for all three dependent variables. This included all independent variables at one time for a full, multiple regression to evaluate the significance and the overlap of any variables within the model. All of the full regression models for three dependent measures of success are included in Appendix D.4.

The results clearly show that when fully-specified, few of the explanatory variables result in significant explanation of the variance in the dependent variables. Therefore, it is necessary to perform additional analyses, based on both statistical inference as well as theoretical direction. The best analyses to perform with this large of a model, including many explanatory variables, are hierarchical and/or forward selection

regressions, both of which are specific kinds of step-wise regression. Both were performed in this case and the results and interpretations follow.

6.2.5 Hierarchical Regression Models

Regression analysis can take many forms. One of the more advanced techniques includes hierarchical regression analysis. In this technique, variables are entered in blocks, or steps, according to the theoretical constructs and concepts of how they interact with each other and affect the dependent variable in question (Kerlinger, 1973; Pedhazur, 1997). Hierarchical regression techniques allow the researcher to isolate the additional variance of the dependent variable that is explained with additional predictor variables, as they are entered. In this way, we are able to determine how much of the variance in the dependent variable each additional explanatory variable contributes to the model. This is given by the change in R-squared for hierarchical models, and will be discussed as we present the figures for multiple tests.

For the models under investigation here, the factors are clearly separable into four main groups of explanatory variables – time, goals, plans, and leadership factors. Within each of these categories, there may be several individual variables, measured either with one individual survey question, or with a combination of multiple questions, already known to combine in order to measure one underlying factor. For the hierarchical analyses here, the variables were entered in blocks according to their theoretical contribution to the overall model and thus the explanation of variance in the dependent variables. Because there were three dependent variables measured in the survey, three different models were run.

For each of the three dependent variables under testing here, different independent variables were chosen to test in the more fine-grained hierarchical regression analyses. These more parsimonious models produced results with more statistical significance for several of the variables tested, and the overall models. The selection of independent variables to include in these hierarchical regressions was based on the original fully-specified models above. As with all the other analyses in this research, the three dependent variables were tested separately, by using different combinations of IVs for each of them, according to what had resulted from the previous analysis to be more significant. For each dependent variable, multiple hierarchical regression analyses were conducted, with each analysis becoming more specified according to the previous results. The final results for each dependent variable are presented in turn below, with two tables for each analysis. The first table, entitled Model Summary, includes the R, R-squared, and changes in R-squared measures. The second table includes the coefficients and their significance for each of the steps of the hierarchical analysis. Appendix D.5 includes one additional model for each dependent variable, which was used in the testing of different groups of explanatory variables. Based on the initial analysis for each model, the final list of variables is presented immediately following.

Model 1: Outcomes Realized

Because the first analysis, included in Appendix D.5, Model 1, showed that neither measure of plans (clarity or flexibility) was significant when included with other variables, both factors were eliminated from the subsequent model. Leadership support

was kept and the measure of clarity of vision was added as well. Accordingly, the two steps for the next analysis were:

1. Clarity of goals
2. + Leadership support, and Clarity of vision

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change
1.1	.609	.371	.362	1.0119	.371
1.2	.685	.470	.446	.9433	.098

Model 1.1 predictors: Clarity of goals
Model 1.2 predictors: Clarity of goals, Leadership support and Clarity of vision.

Coefficients

Model		B	Std. Error	Beta	t	Sig.
1.1	(Constant)	2.131	.284		7.504	.000
	Clarity of goals	.452	.071	.609	6.385	.000
1.2	(Constant)	.829	.465		1.784	.079
	Clarity of goals	.269	.091	.363	2.968	.004
	Leadership support	.411	.119	.454	3.452	.001
	Clarity of vision	-8.529E-02	.102	-.099	-.836	.406

We can see that we have been able to explain approximately 47% of the variance in the dependent variable here, and all the variables entered, with the exception of clarity of vision, are significant with a p-value of < .005.

Model 2: Perceptual Rating of Success

Based on this first analysis, included in Appendix D.5, Model 2, the next hierarchical regression was run with the exclusion of certain variables that clearly did not contribute to the explanatory power of the analysis (time available, and availability of plans). For the next analysis, the following variables comprised the three steps:

1. Clarity of goals
2. + Flexibility of plans
3. + Clarity of vision

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change
2.1	.395	.156	.143	1.3104	.156
2.2	.425	.181	.156	1.3006	.025
2.3	.426	.181	.144	1.3098	.001

Model 2.1 predictors: Clarity of goals
Model 2.2 predictors: Clarity of goals, and Flexibility of plans
Model 2.3 predictors: Clarity of goals, Flexibility of plans, and Clarity of vision

Coefficients

Model		B	Std. Error	Beta	t	Sig.
2.1	(Constant)	3.559	.370		9.623	.000
	Clarity of goals	-.330	.093	-.395	-3.544	.001
2.2	(Constant)	3.928	.449		8.742	.000
	Clarity of goals	-.277	.099	-.332	-2.785	.007
	Flexibility of plans	-.174	.122	-.170	-1.424	.159
2.3	(Constant)	3.971	.485		8.188	.000
	Clarity of goals	-.264	.113	-.316	-2.322	.023
	Flexibility of plans	-.166	.127	-.162	-1.306	.196
	Clarity of vision	-3.320E-02	.132	-.034	-.251	.803

For the dependent variable of perceptual rating of overall success, we conclude that the only truly significant variable is clarity of plans. Flexibility of plans does provide some explanatory power, though its significance is at a p-value of <.200, an alpha that is normally too high to include an explanatory variable as a statistically significant contributor to the model. Also of note in this model is the negative coefficient values associated with the explanatory variables. The outcome in this model was measured on a reverse-coded scale, so the negative relationships are what we would expect. As the levels of the significant variables increase, so does the overall perception of transformation success by the respondent. The final amount of variance in this outcome that we can explain with the current hierarchical regression analysis is approximately 43%.

Model 3: Desirability of Realized Outcomes

The last dependent variable to be tested with a parsimonious hierarchical regression analysis was desirability of realized outcomes. This dependent variable was measured with three different questions and the final factor was a linear combination of responses on all three questions. Based on the first analysis, presented in Appendix D.5, Model 3, we see that once all the chosen explanatory variables have been included in the analysis, time is not significant. Therefore, the final analysis included three steps with the following variables added in each one:

1. Clarity of goals
2. + Clarity of plans, and Flexibility of plans
3. + Leadership support, and Leadership communication

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change
3.1	.665	.443	.434	.9607	.443
3.2	.717	.514	.491	.9112	.071
3.3	.783	.614	.583	.8249	.100

Model 3.1 predictors: Clarity of goals
Model 3.2 predictors: Clarity of goals, Clarity of plans, and Flexibility of plans
Model 3.3 predictors: Clarity of goals, Clarity of plans, Flexibility of plans, Leadership support, and Leadership communication

Coefficients

Model		B	Std. Error	Beta	t	Sig.
3.1	(Constant)	4.993	.271		18.411	.000
	Clarity of goals	-.497	.068	-.665	-7.294	.000
3.2	(Constant)	5.593	.323		17.301	.000
	Clarity of goals	-.348	.093	-.465	-3.755	.000
	Clarity of plans	-.161	.122	-.174	-1.326	.189
	Flexibility of plans	-.200	.092	-.213	-2.174	.033
3.3	(Constant)	6.743	.420		16.070	.000
	Clarity of goals	-.202	.096	-.271	-2.110	.039
	Clarity of plans	-.164	.111	-.177	-1.479	.144
	Flexibility of plans	-.125	.092	-.134	-1.359	.179
	Leadership communication	.179	.115	.226	1.557	.125
	Leadership support	-.506	.129	-.553	-3.912	.000

This last model shows some interesting results. We have two variables that show clear significance in explaining the variance of the dependent variable, after all chosen explanatory variables are entered – clarity of goals and leadership support (both with p-values <.05). We also have three other variables that, although they do not make the significance cutoff (alpha < .05/.10), they are more significant than other explanatory variables in previous models (different dependent variables). These three predictors – clarity of plans, flexibility of plans, and leadership communication – certainly add some explanatory power to the model, and all of their p-values are below .20 (.15 for two of them). The full hierarchical model here explains 61% of the variance in the dependent variable, a much larger amount than with the previous two dependent variable models. As above, we also see that the coefficients have negative values associated with them. However, for this dependent variable, it is to be expected. The outcome was measured on a reverse coded scale, with one the highest rating and three the lowest. The one variable that shows a positive coefficient is the anomaly that requires more explanation (leadership communication). The most obvious explanation is that as the level of communication by the leadership increases, the levels of desirability of the overall transformation outcomes decreases. The variable shows marginal statistical significance, and so is not included in the final interpretation of significant explanatory variables, though it is worth considering alternate explanations for the negative relationship, as it is opposite of what we would expect.

6.2.6 Forward Selection Regression Models

Similar to the hierarchical regression methods used above, forward selection methods choose certain explanatory variables to include in a regression analysis.

However, whereas in hierarchical regression techniques the researcher chooses the variables to enter in blocks according to theoretical direction, forward selection methods allow the software tool in use to choose the variables to enter according to statistical significance. The researcher chooses an alpha cutoff value, which in this case was entered at 0.2. Although this value is higher than where we will choose to cutoff the interpretation of significance, it does allow us to see which variables are marginally significant, as we were able to in the hierarchical regressions. Forward selection models were run for all three dependent variables, and the results are below. We would expect, a priori, to find similar if not identical results from this technique and from the hierarchical regression analyses, if the theoretical reasoning behind the choice of variables to enter was valid. The full results of these analyses are included in Appendix D.6, and show similar findings to the hierarchical regression models.

6.3 Additional Analyses

One of the keys to understanding the relationships between the independent, explanatory variables and the chosen outcomes can come from examining the correlations between those independent variables that have shown significance in the models. The important question is whether the underlying significant variables within each model tested exhibit multicollinearity. We examined this question by evaluating the bivariate correlations for the sets of variables per predicted measure. Below are the findings with discussions following.

Model 1: Outcomes Realized

The variables of import here, as found in both hierarchical and forward selection methods of regression are clarity of goals and leadership support. The correlations were

also run with the variable of clarity of vision, since it was included in the final hierarchical model, even though it was found not to be significant.

Correlations for significant variables in Model 1

	Clarity of goals	Clarity of vision	Leadership support
Clarity of goals	1.000	.557	.650
Clarity of vision	.557	1.000	.634
Leadership support	.650	.634	1.000

We can see here that the variables found to be significant in explaining the variance in outcomes realized are correlated with each other at below a .7 threshold. Although theoretically high, this correlation may not be an issue, since we could easily expect that during a long-term transformation process, certain parts of the process and the behavior exhibited by leadership may in fact be highly related to one another. For example, if the leadership in charge of designing the process, and deciding on the number of goals to pursue was attentive to the impact that decisions had on the employees during the process, they very well might be the same kind of leaders that exhibit high degrees of continuous support. It could be for many of these high levels of correlation, that there are spurious effects due to an overriding variable not specifically captured quantitatively with the survey. This variable could be thought of as "good transformation process design".

Model 2: Perceptual Rating of Success

The variables found to be of significance for this model were clarity of goals and flexibility of plans. However, the latter variable was marginally significant, at best. The correlation between these two is displayed in the following table.

Correlations for significant variables in Model 2

	Clarity of goals	Flexibility of plans
Clarity of goals	1.000	.360
Flexibility of plans	.360	1.000

Here we see that statistically the correlation between these two variables is rather low – well below .5. This provides more assurance that we are measuring the right predictors as related to the explanation of variance in the perception of overall transformation success

Model 3: Desirability of Realized Outcomes

The variables found to be significant here varied according to the method used. The reader will recall that the hierarchical analysis gave us up to five variables that can be understood as possible predictors for this dependent variable. Although three of these were marginally significant, their p-values indicated some explanatory power and so we have include them in the final correlation analysis here.

Correlations for significant variables in Model 3

	Clarity of goals	Clarity of plans	Flexibility of plans	Leadership commun.	Leadership support
Clarity of goals	1.000	.715	.360	.642	.650
Clarity of plans	.715	1.000	.472	.593	.557
Flexibility of plans	.360	.472	1.000	.526	.442
Leadership commun.	.642	.593	.526	1.000	.814
Leadership support	.650	.557	.442	.814	1.000

We can begin the examination of the correlations with the two most clearly significant explanatory variables – clarity of goals and leadership support. These two factors are correlated with each other at a value of less than .7. Although this may seem high, some of the explanation may come from spurious factors influencing both of these variables, as we hypothesized above, for the first model. On further examination, we see that for some of the secondary variables of significance (p values <.2) there are some correlation issues, though the only one of real concern is the correlation between leadership communication and leadership support (.814). Although we are confident that the measurement of these variables was valid in the survey, they are both likely to be related to one another, or connected through a third variable which impacts both – i.e. "quality of leadership".

Another correlation analysis that is useful is that between the significant variables and those that were found never to be significant in any of the models. This examination allows us to see if the reasons for non-significant findings are due to multi-collinearity between the significant variables and the non-significant ones, implying that the presence of the significant ones makes up for the others. Table 6.13 below shows these correlations. This table represents the full correlations table, as all nine variables tested for hypothetical relationships are included.

Table 6.10: Correlations of significant and non-significant variables

	Variables found to be significant					Non-significant variables			
	Clarity of goals	**Leadership support**	**Flexibility of plans**	**Clarity of plans**	**Leadership commu-nication**	**Availability of time**	**Number of goals**	**Availability of plans**	**Clarity of vision**
Clarity of goals	1	0.65	0.36	0.715	0.642	0.722	0.249	0.776	0.557
Leadership support	0.65	1	0.442	0.557	0.814	0.558	0.255	0.597	0.634
Flexibility of plans	0.36	0.442	1	0.472	0.526	0.301	0.178	0.4	0.398
Clarity of plans	0.715	0.557	0.472	1	0.593	0.609	0.22	0.796	0.571
Leadership communicat ion	0.642	0.814	0.526	0.593	1	0.507	0.28	0.641	0.736
Availability of time	0.722	0.558	0.301	0.609	0.507	1	0.149	0.618	0.482
Number of goals	0.249	0.255	0.178	0.22	0.28	0.149	1	0.273	0.278
Availability of plans	0.776	0.597	0.4	0.796	0.641	0.618	0.273	1	0.574
Clarity of vision	0.557	0.634	0.398	0.571	0.736	0.482	0.278	0.574	1

There are several correlations here of specific interest, and as we examine the variables found never to be significant, we see that there are some high correlations with their significant counterparts, thus revealing some multicollinearity issues, and providing statistical reasoning behind why some of the hypothesized factors were not found to be important in explaining the variance of the dependent variables. "Time available" displays a high correlation with "Clarity of goals", "Clarity of plans", and "Availability of plans". This is mostly due to the way in which the questions were asked, indicating that there were overlaps in the underlying factors that the multiple questions that measured these variables captured. "Number of goals" does not correlate highly with any of the non-significant variables. Thus, there is no measurement error here, but rather we

are confident in drawing the conclusion that this factor does not significantly affect the success of transformation processes. "Availability of plans" is highly correlated with "Clarity of goals", "Clarity of plans", and somewhat highly with "Leadership communication", and "Time available". As with the explanation about "Time available", then, we find some multicollinearity in the underlying factor measurement of these variables, thus rendering them non-significant. Lastly, we see that "Clarity of vision" is highly correlated with "Leadership support" and "Leadership communication". As with the explanation above about some of the multi-collinearity effects of all leadership qualities, it is not unusual to see significant overlaps in these factors.

Based on this analysis, we have some statistical reasoning behind the findings of certain factors as never significant in explaining the variance among multiple transformation success measures. These empirical conclusions must be coupled with the previously discussed theoretical implications and explanations of why some of these factors were not found to be supported in the final analysis. This is discussed at length in Chapter 7.

6.4 Conclusions

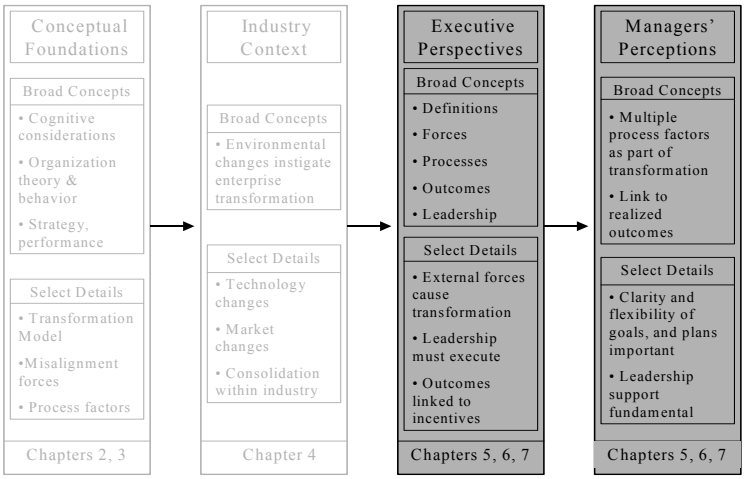
The results and analyses of both the interviews and the surveys provide multiple data sets used to inform the theoretical concepts included in this study as well as to test the directional relationships hypothesized. We have found mixed results for the hypotheses, more discussion of which follows this chapter. We have also found significant support for the theoretical ideas developed in the Model, both from the interview results as well as the parts of the survey data. The interviews were used not only to help with the development of the Model but also with the development of the

survey, providing fodder for questions and relationships to be tested in the survey that had not previously been considered. The survey results, in addition to providing the statistical analyses for the hypotheses testing, also provide some descriptive statistics about the population under study and the perceptions of several transformation process factors. The subsequent chapter discusses the findings in depth, as they relate to the theoretical propositions set forth at the beginning of the document.

Although Chapter 7 discusses detailed implications and applications of the empirical findings in depth, it is worth noting at this point the connection back to the original model developed and hypotheses proposed. The interview and survey results allow us to isolate specific variables that provide significant explanatory power in understanding the variance of transformation process outcomes. The Model, presented originally in Chapter 3, specifies multiple factors at individual and organizational levels that will influence the success of transformation. The results presented in this chapter allow for conclusions about those proposed factors. The contribution of multiple theories in developing the unique model tested here is clear in that many of the variables that were included the model as a result of the inspiration of previous research are shown to be significant – i.e. aspects of plans, goals, and leadership elements. The next chapter will delve into more detail on this subject.

CHAPTER 7 – RESULTS AND DISCUSSION

The previous chapter presents and describes the findings of the series of executive interviews and manager surveys. Many of the interpretations of the interviews results are embedded within the description of findings, mostly as related to the development of hypotheses about process factors and outcomes, as well as to the creation of the survey. However, more in depth discussion of the survey findings is in order, and is part of a conclusion section here about the implications for the questions asked in this study. The goal of the entire study is to provide more insight, based on qualitative and quantitative research, about the factors that are important in determining success of large-scale transformation. Thus the factors that were found to be significant in the survey data analyses provide us with evidence for conclusions about these results and illuminate some facets of the uncertainty that seems prevalent in this area of management research and practice. The Thesis Flow Map is presented below with the last two boxes highlighted to represent the focus on the interpretation of the findings discussed in this chapter, including interpretations of both executive perspectives and managers' perceptions.



7.1 Interpretation of Regression Models' Results

Based on the foregoing results of the data analyses, we have found several hypothesized and measured factors that explain much of the variance in perceived success of transformation processes. The most significant model is the one with "desirability of realized outcomes" as the dependent variable. There are several possible explanations for this. First, the measure of this dependent variable comes from a linear combination of the answers to three questions. These three questions ask the survey respondent about their perception of the final changes of the transformation:

- Has the transformation changed your vision of the company strategy, in a desirable way?
- Has the transformation changed your daily activities, in a desirable way?
- Do you believe the transformation has changed the overall culture of the company, in a desirable way?

These questions were answered on a three-point scale, with answer choices yes, somewhat, and no. The combination of these questions, as analyzed through principal component analysis, clearly measures one factor, which is best described as "desirability of realized outcomes". The questions all ask the respondent to evaluate the final results of the transformation as it relates to their individual jobs and activities, as well as the enterprise as a whole. Therefore, it is likely that respondents were attentive and able to provide a robust evaluation on these dimensions. Furthermore, given other explanatory questions in the survey and the statistical testing of their relationships to the measure of success, it is probable that survey respondents were able to provide answers in congruence with each other, when asked to recall their reactions to the transformation.

Statistical analysis of this dependent variable provides us with two clearly significant variables that explain much of the variation in the outcome – clarity of goals

and leadership support – in combination with three others, explaining over 60% of the variance of the outcome. Because the survey is fundamentally a perceptual measure of respondents' experience, the connection between these predictors and the outcome seems theoretically clear, as well as statistically significant. According to the Transformation Model presented in Chapter 3, and the integrated process factors model therein, the level of clarity in the plan during an uncertain time such as long term, large-scale transformation is important in producing positive changes in the structure, activities and culture of the enterprise. Within the context of the model, increased clarity fosters a more effective control mode, thereby positively impacting the success factors. Also, consistent support by leadership is important in helping the employees to maintain a level of dedication to the transformation, thus increasing the overall success of the change process. We can interpret consistent (or positive) leadership support as relating to more effective control.

Our hierarchical analysis shows three additional variables – clarity of plans, leadership communication, and flexibility of plans – to be marginally significant. This finding is consistent with the theoretical model, as well. Leadership communication levels are strongly related to leadership support, whereas clarity of plans and flexibility of plans provide a more action-oriented level of direction to those implementing and affected by the transformation on a daily basis. Figure 7.1 below displays the relationships of the explanatory variables and the outcome "desirability of outcomes". This figure, and the other two that follow, include standardized regression coefficients and the p-values for the same variables in parentheses. The figures show the results from

both the hierarchical and forward selection methods of step-wise regression, as well as the full R-squared values from both regression techniques.

The negative coefficients in this model indicate that as the values for the independent variables increase, the value of the dependent variable decreases. For this model, these negative relationships are expected, since the outcome measure was rated by the survey respondents on a reverse-coded scale, with higher numbers indicating lesser values. The variable that displays a positive coefficient is the anomaly and warrants more discussion of its meaning. As indicated in the original results section in Chapter 6, we can strictly interpret this to mean that as the level of leadership communication increases, the desirability of the outcomes decreases. However, since this is not in line with our theory, we must search for a different explanation. It could be that the negative relationship for leadership communication is reflective of a spurious effect of a factor not explicitly captured in the survey – this would indicate the presence of a moderator or fully mediating variable between this predictor and the outcome. Another possible explanation is that the negative relationship implies the need for greater levels of communication, in order to relate to a higher level of the dependent variable. Since we do not have the measure that might explain this relationship in the data, further research would be required to uncover the underlying factor that could be causing this anomaly.

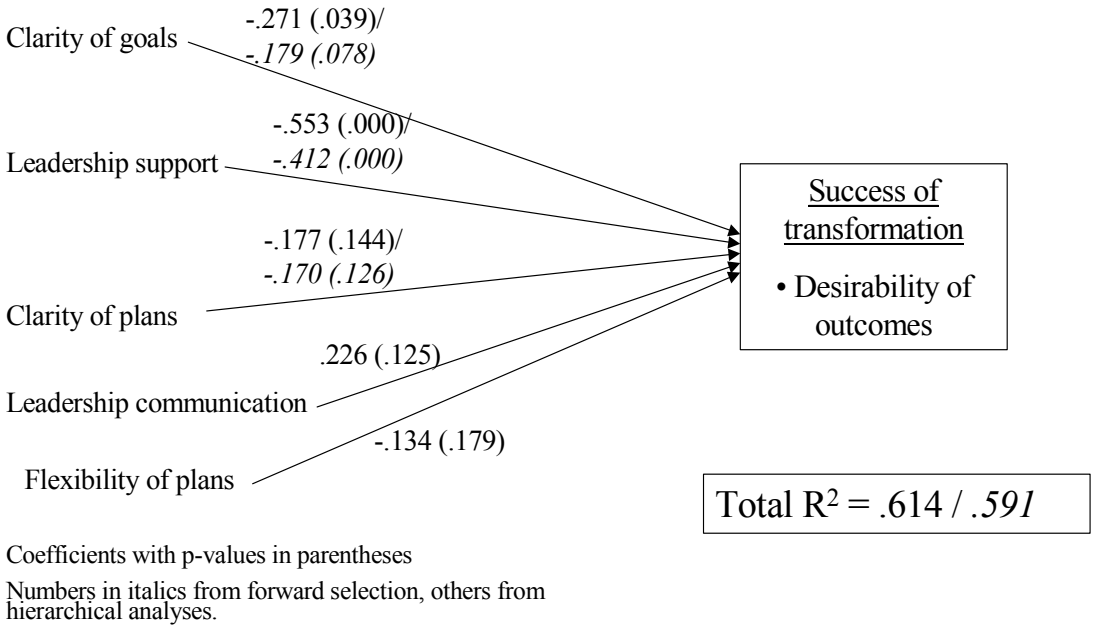


Figure 7.1: Desirability of Realized Outcomes as Dependent Variable (Beta coefficients)

The second model to produce significant statistical results was tested with the dependent variable "outcomes realized (number)". This outcome as a measure of the success of transformation was tested with one question in the survey:

- Were the outcomes realized?
  1. 0 to 20% of the time
  2. 21 to 40% of the time
  3. 41 to 60% of the time
  4. 61 to 80% of the time
  5. 81 to 100% of the time

The most valid interpretation of this measure can be fully named "frequency of realization of intended transformation outcomes". (The preceding question in the survey asked specifically about the clarity of intended transformation outcomes during the process.) This metric of transformation success measures the respondents' perception of

how often previously defined and articulated outcomes were realized throughout a long-term change process. The theoretical model proposes that the process, including various defined elements, such as goals, plans, time, and leadership qualities, will all have a positive impact on the control mode and thus on the final success of transformation. Although certain measures of transformation success, such as the desirability of outcomes, may be best measured with opinions or perceptions of impact on the individuals affected, other measures are clearly tied to the actual realization of intentions. Positive perceptions of an enterprise and its changes are healthy, but not enough to sustain an ongoing enterprise with production and profit goals. Therefore, this transformation success measure provides us with insight into the more operational aspects of transformation process.

Statistical analysis reveals two variables with clear significant impact on this outcome – clarity of goals and leadership support – that provide explanation of approximately 45-47% of the variance in the outcome. This finding is interpreted to mean that it is necessary to specify and clarify the intended goals as well as to provide consistent support throughout a transformation process in order to produce actionable, intended outcomes, specifically as a function of the original intentions of the process. The figure below displays the relationships of the significant explanatory variables with the outcome "number of outcomes realized". The results indicate that as the clarity of the goals and the levels of leadership support increase, as perceived by the enterprise members, the number of outcomes of the transformation process that are realized increases as well.

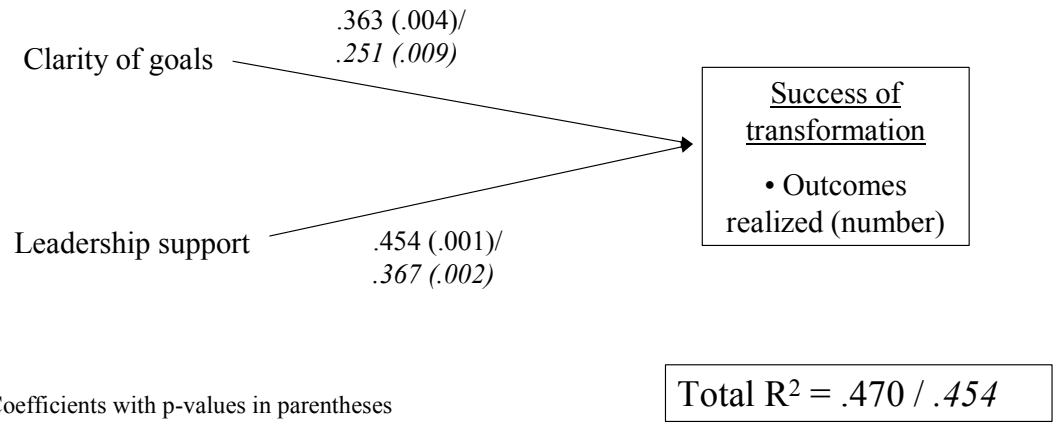


Figure 7.2: Outcomes Realized as Dependent Variable (Beta coefficients)

The least significant model was found to be that with the dependent variable "perceptual rating of transformation success". The question that measured this outcome was included in the survey as follows:

- Overall, how successful would you rate the transformation process in terms of realizing its intended outcomes?
  1. very successful 2. moderately successful 3. no real effect
  4. moderately unsuccessful 5. very unsuccessful

It is probable that this question may have been too vague or ambiguously worded for respondents to provide robust answers across the sample. The interpretation of the question is probably highly variable, in that individuals' understanding of what is meant by "rate" is dependent on factors outside the scope of this study, such as organizational and other social understandings of intended outcomes. Furthermore, the variance in this outcome measure was higher than for the other dependent variables, making the

explanation of its variability more challenging with the predictors in the model. Nonetheless, the analysis did produce at least one variable with clear significant impact in explaining the variability in this outcome measure – clarity of goals. The second variable that showed marginal significance was flexibility of plans. Between the two variables, we can explain approximately 18% of the variance in the outcome. Focusing on the notion of clarity of goals, we have seen this predictor to be significant in all our models. Certainly in the case of overall perception of success, the clarity of the goals originally articulated during the transformation process also helps elicit a higher overall perception of the success of the process. The figure below includes a visual display of the variables that were shown to be significant (or marginally significant) in explaining the outcome of perceptual rating of transformation process success.

The coefficients in this model also display negative values, which also are expected in this case because the outcome was measured on a reverse coded scale. The answer choices for the outcome question about perceptual rating of overall transformation success was asked on a five-point scale with answers ranging from very successful to very unsuccessful. This scale implies a lower rating for higher numbers, whereas all the independent variables were answered on a scale that had higher numbers indicating more positive values of the variable. Therefore, we can conclude that as the levels of the independent variables clarity of goals and flexibility of plans increase, the overall perception of the success of the transformation also increases.

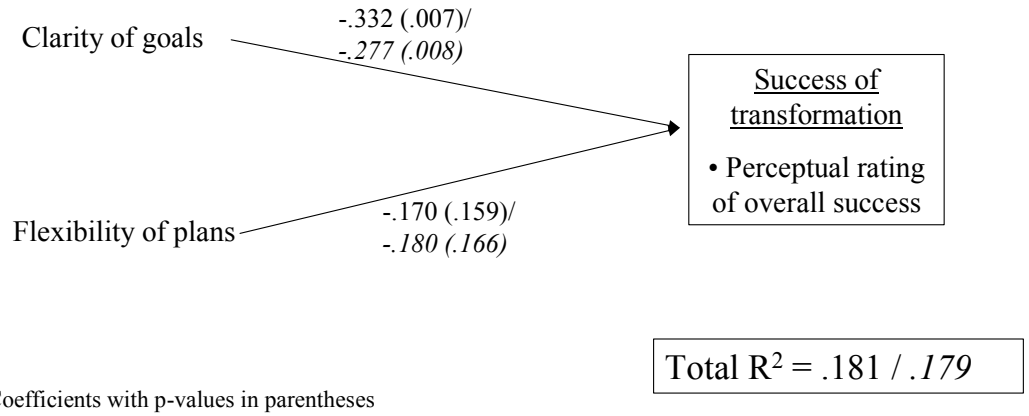


Figure 7.3: Perceptual Rating as Dependent Variable (Beta coefficients)

7.1.1 Discussion of Hypotheses Testing Results

Based on the various regression analyses, we have a strong sense of which variables measured in the survey, chosen based on the theoretical model and the primary research, are perceived as being directly related to the success of transformation processes. We have mixed results for our hypotheses. Hypothesis 1 (time available) was not supported in any of the models. The fact that time was not a significant predictor or explanatory variable for success of transformation processes is interesting, based on other previous research that has theorized about the importance of time. A potential issue in this study may come from the way time was measured – perceptually. Because time provided is a factor that can be directly measured quantitatively, subsequent research should explore how to relate temporal notions to transformation success outcomes through different measures.

We have mixed results for the second hypothesis (related to goals). Number of goals was never found to be significant, though clarity of goals was strongly supported to be positively related to transformation success (three out of three models). Almost all survey respondents reported that they felt that the number of goals was adequate or appropriate given the process and other constraints. The strong support for clarity of goals is illuminating. We conclude from this that during the messy and often-uncertain process of large-scale transformation, it is very important to multiple measures of success that the employees and enterprise members involved are provided with a clear sense of the ultimate goal of all phases and overall end result of the transformation.

We find mixed support for hypothesis 3 (related to aspects of plans and procedures). The mere existence, or availability of plans was never significant. This can probably be attributed to the resourcefulness of enterprise members in the midst of transformation processes, as well as in the explicit providing of action plans and procedures by the leadership. We found support for the notions that clarity and flexibility of plans are positively related to transformation success. These conclusions are similar to the discussion above regarding goals. Rather than focusing on how *many* plans are available to enterprise members, the more important aspects seem to be the ability to change plans accordingly during the process (flexibility) and the ability to clearly identify appropriate plans (clarity).

Aspects of leadership provided mixed results (hypothesis 4). Clarity of vision was never found to be significant. Similar to other variables without much explanatory power, the overall perception of the clarity of vision seemed to be high across the sample (mean of 3.6 on a five-point scale). What was of more import was the consistent support

provided by leadership throughout the process. This variable was significant in two of the three models tested. Leadership communication produced marginally significant results in one of the models. The clear conclusion from this is that the most important aspect of leadership in the success of transformation, as perceived by enterprise members, is the active and ongoing support and commitment by the leaders – not just the articulation of the vision and the progress of the process. This supports many of the interviewee observations that accountability and visible commitment to and action towards the transformation process was more important than mere "communication" or discussion of the vision, goals and other typical management foci.

To conclude, the independent variables found to be consistently and highly significant were clarity of goals and leadership support. There is also a set of secondary explanatory variables that provide some significance in explaining the variance in the measures of transformation success. Four variables were found never to be significant: time available, number of goals, availability of plans, and clarity of vision. The discussion of correlations between these two sets of variables in Chapter 6, provides some statistical reasoning behind the findings, and additional, and perhaps more important theoretical explanations have been developed here as well.

7.1.2 Explanation of Hierarchical vs. Forward Selection Findings

In the previous chapter, as well as in the preceding section in this chapter, there was some discrepancy reported between the R-squared values found in the hierarchical regression models and the forward selection regression models. Although the goal of the two methods is the same – to isolate the most significant variables in explaining the variance in the outcome – the steps taken to answer the question are different.

Hierarchical regression analysis relies on the researcher inputting the factors in steps, according to conceptual direction. The forward selection method relies purely on statistical significance, and is a more stringent method. In this method, the software program searches algorithmically for the variables that will most quickly explain the outcome variance. Because the independent variables entered do have some correlation with each other, the order in which they are entered in the model will influence the ending R-squared number. (As additional variables are entered in a step-wise model, the added variance that is explained in the outcome by the addition of the new variable(s) accounts for the change in R-squared).

In the findings here, the hierarchical analyses always provided a slightly higher R-squared value than the forward selection method. We can interpret this to mean that the theoretically based steps for explaining the outcomes in question had more of an impact than the purely mathematically based analysis. Nonetheless, the variables found to be significant were similar, or the same, with both methods, and so we are not concerned that the hierarchical analyses are not valid. Fundamentally, this discrepancy between a conceptual, yet statistically valid method, and a purely mathematical one, reinforces the need for this kind of study to be directed by theory, based on previous research as well as practice-based findings, such as those that were included in the survey instrument due to the interview findings.

7.2 Observations and Learning

In the discussion of the development of the original Model in this study, several factors that were not tested within the statistical and empirical analyses were nonetheless

commented on and included as conceptual considerations. Learning from the interviews, the surveys and overall impressions within the contact of the study here are worth discussing at this point. Much discussion in Chapter 2 was focused on what current understanding about resistance to change characteristics influence an enterprise's ability to recognize the need for and successfully implement transformation. Certainly, much of these resistance to change notions are also intricately related to leadership qualities. The considerations of different aspects of organization leadership is circularly related to internal organizational attributes, such as size, strategy, learning elements, culture, etc. Although no interviewees specifically discussed the resistance to change issues (mostly due to lack of sufficient time to address these concerns), there were many tangential conversations that referred to these concerns. Furthermore, some of the qualitative and descriptive data collected by the survey inform some general thoughts on this aspect of transformation.

It is this author's impression that we cannot separate the consideration of resistance to change from the charismatic and execution-oriented aspects of organizational leadership. Although difficult to capture empirically, the general position of the leadership is a strong influencing factor in an organization's ability to react to forces that cause the need for change, as well as the actual implementation of intended transformation processes. I think these factors may best be captured with organization-specific measures of learning and cultural elements that can act as proxies for resistance to change. The idea of recognition of the need for transformation is also intimately tied to this issue – or in fact may be the same issue. True transformation processes cannot be implemented before the decision makers recognizes the need for such initiatives – either

proactively or reactively. The notion of recognition of the need for change is one that also deserves empirical attention in order test certain initial propositions. One such proposition, or impression gleaned from this study is that recognition of the need for change may have much to do with an organization's leadership philosophy and previous experience. These factors manifest themselves through the internal cultural elements related to questioning of authority, learning focus, and communication styles that develop over time within established organizations.

Another point of observation, not empirically tested, though informed by the multiple research methods and analyses employed here, is related to issues of incentives and internal reward mechanisms. A few of the interview discussions segued into observations about mechanisms for incentives and rewards aligned with transformation goals, both long term and interim (along multiple phases of a long-term process). There certainly has been some management-focused literature about incentives and reward systems, as related to performance and desired behavior. However, to my knowledge, there has been little empirical attention paid to these issues, and almost no attention devoted within the specific context of transformation processes. If we connect the anecdotal observations as well as some of the initial management theories with the knowledge we gain from cognitive engineering research, we have an even richer idea of where reward and incentive systems lie within the transformation-focused studies. Cognitive engineering, such as some of the work called upon here in creation of the original model, includes specific measurable considerations of action-oriented, behavior and skill-influencing factors. Using these ideas (execution rather than rhetoric) can provide some inspiration for the testing of incentive systems based on desired changes to

be made during a transformation. Certainly initial anecdotal evidence from the interviews supports the idea that in order to instigate changes in work and behavior from individuals and thus the organization as an aggregate entity, we must pay special attention to rewarding the desired behaviors and changes in patterns.

The following section in this chapter delves into specific detail about the connection of our findings to the conceptual model and hypotheses presented earlier in the document. Suffice it to say, in conjunction with some of the forthcoming observations, though they are not empirically-based, we have been able to uncover significant pieces of the transformation process. These elements in an often long-term, multiple part process with high uncertainty, begins to inform the practice of how to better design such implementation processes in order to generate the kinds of changes in behavior and organizational outcomes that are sought.

7.3 Overall Conclusions

The support for the Transformation Model and its internal process elements can be best seen in the Figure below, 7.4. The figure includes the original model with the specific elements within the process portion that were supported in the statistical analysis. We can see that several of the process factors that were theorized to be important in the success of long-term transformation processes were shown to be so in the empirical analyses provided by the survey results. Although we have an overall mixed support level for the transformation process box, as a whole, several of the internal factors provided very high statistical significance in their relationships with multiple measures of transformation success. Furthermore, the high R-squared values here allow for a high

level of confidence in supporting the overall Transformation Model factors and relationships. Of perhaps most importance and application here is the ability to parse out and isolate those measurable variables that are significant in explaining the success of transformation, from those that are not significant. This provides a more focused model for researchers and management practitioners, drawing attention away from factors that may often be included in the process, but in fact may not significantly influence the desired results.

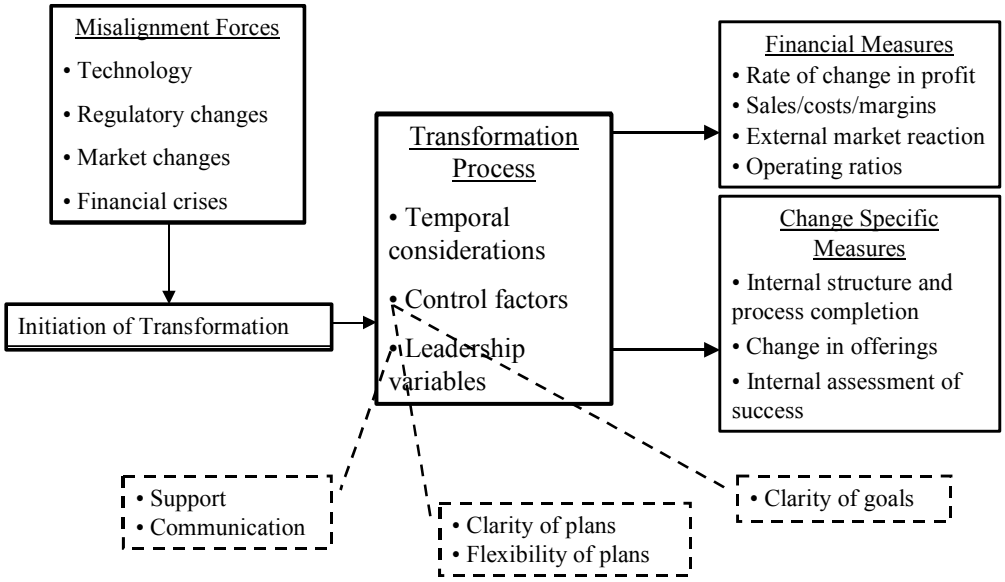


Figure 7.4: Support for Transformation Model
(Boxes with dashed lines indicate variables found to be significant)

Another important consideration in discussing the importance of the results is to the Theory of Enterprise Transformation (Rouse, 2005), referred to here in the discussion of supporting research in Chapter 2, and Appendix A. This Theory describes several of the elements that are inherent in large-scale transformation across multiple industries and

enterprises. Several of the internal transformation considerations explicated by this theory were supported by the findings here, providing the first empirical study and test of the propositions and relationships set forth.

The five primary areas that the Rouse theory focuses on as driving, enabling or having a significant impact on the implementation of transformation are: value deficiencies, work processes, management decision-making, allocation of attention and resources, and social networks. The findings in this study reinforce many of the theoretical contentions, each of which will be discussed briefly in turn here. The last area, social networks, was not specifically addressed in this study, though the consideration of how to relate back to this aspect of the theory is discussed briefly in the next chapter.

In Rouse's work, value deficiencies drive the need for transformation. This contention has been clearly supported by the theoretical development of the model, based on both previous research and primary data collected from the interviews. The idea of misalignment between the enterprise and its environment, as driven by changes in multiple forces (primarily external) was reinforced several times during the interviews. Rouse contends that changes in work processes enable the transformation, an idea that gained much empirical evidence here. The focus on execution aspects of leadership by the interviewees, and the consistent support for leadership factors as significant in explaining the outcomes in the statistical models all reinforce this idea. The explicit inclusion of facets of the plans and goals of the transformation process as being significant in predicting and explaining the success of transformation supports the notion that changes in work processes are fundamental in facilitating transformation.

Much of the theory development in the present study focuses on how to integrate aspects of management decision making in the model. Many interviewees touched on this subject, within the context of the leadership factors mentioned, and the previous research reviewed here also supports the importance of management decision making in leading massive transformation. The empirical data collected in this study did test for explicit connections between decision-making characteristics and transformation outcomes, but several implicit notions are also included. This is an area that is ripe for future empirical research, based on some of the initial findings here.

Lastly, the idea of allocation of attention and resources is woven throughout this study – mostly in the theory development and Transformation Model factors. Learning and recognition of the need for transformation are both pieces of the Model that are proposed to have an impact, either as antecedents or as part of a feedback loop, with the process and outcomes of transformations. Some initial interview findings show that the notion of attention to resource allocation as well as management time is important in modeling and understanding the process and success of transformation processes.In general, we have shown that the context for the research here is an environment ripe with massive changes over the last 20 years, catalyzing internal enterprise transformation in many retail organizations. Primarily external forces have caused reactive transformation in the retail industry, and organizations have behaved as expected – searching for ways to radically alter their operations, strategy, culture and work processes in order to stay competitive. The overall conclusions we can draw from these changes and the empirical research (both interviews and surveys) have shown that leadership is consistently important in affecting successful transformation. The leadership variables of most import

are those related to execution and visible support and commitment. Actionable elements evident in the overall design and implementation of transformation processes are also significant, most importantly clarity of goals and plans, and flexibility of plans. These findings allow for more focused strategies to contend with the inherent uncertainty and loss of control that is always experienced during long-term changes involved in massive enterprise transformation.

CHAPTER 8 – IMPLICATIONS FOR PRACTICE AND FUTURE CONSIDERATIONS

8.1 Introduction

The foregoing chapters have set forth the conceptual and empirical portions of this study. Several clear conclusions come from the data analyses and interpretations of findings. These conclusions are relevant to both practice and theory, and set up several considerations for future work in many fields. In addition to the strict interpretation of the results and related conclusions delineated in Chapter 7, contribution to theory comes from the following concluding points:

- Leadership elements that require more theoretical and empirical attention are those related more to action and execution than to vision and motivation.
- Clarity of the goals and plans inherent in transformation processes is more important than the mere existence of those plans and goals.
- Individuals in an enterprise during transformation need consistent and repetitive direction and examples from the leadership.
- Individual behavior changes aggregate to affect the organization as a whole.

The following section delves into details about application of the findings to practice, and management situations. The fundamental take away points of most relevance to practitioners are the following:

- Transformation processes must be designed with multiple stages, each of which should include clearly defined goals and plans.
- Leadership should take an active, participatory role in the process, in addition to articulating the vision and long-term intent of the transformation.
- Flexibility during the process helps improve the success of the outcomes.

The rest of this chapter is dedicated to discussing in more detail the practical implications and the potential use of the model and its findings to situations of enterprise transformation. There is an additional section that extends the discussion of findings and implications in terms of ideas and starting points for future research.

8.2 Implications for Theory

The beginning of the dissertation set forth the intention to contribute to theory and literature in a number of scholarly fields (see Figure 1.1). Much of the work conducted for the study, including both conceptual development of the original Transformation Model and the empirical data collection and analyses has resulted in findings relevant to multiple domains of study. Organization science, including strategic management, organization behavior, top management leadership, and organization theory has all been contributed to here. We have expanded much of the current knowledge about the processes that are designed and implemented during enterprise transformation, a large-scale, disruptive phenomenon that affects many organizations today. Among the findings are the conclusions that multiple levels of analysis need to be considered, and that the changes that affect individual perceptions, understandings and reactions to change situations can be aggregated to understand and measure the level of success of a transformation.

The previous chapter, as well as additional sections in the current chapter, provide detailed discussion of what these factors are. Most importantly, we have found that antecedents to control, such as the clarity of goals and plans, and the flexibility of those plans, as well as execution-focused leadership elements, are of most import in producing

successful organizational change. Research on performance, internal organizational decisions and structural elements, as well as design elements of a multi-stage process are all fundamental to producing desired results. The match between intentions and strategic direction, and the executable, actionable elements that allow individuals to change their work patterns under clear direction is of utmost importance in producing the desired results of transformation.

Another body of research to which this study has contributed is cognitive engineering, specifically many of the ideas about individual level cognition and control, and socially-shared cognition. We have found that elements that lead up to individual understanding and therefore control under transformation situations are more important than the mere existence of elements such as plans and goals. To reiterate what was originally discussed during the development of the model, multiple theories and research streams were drawn on to inform the creation of the unique model here. We have shown that there is an explicit connection between the individual level considerations and the organizational-level results. Inclusion of cognitive factors, and control-specific elements have shown us that certain levels of context and clarity play an important role in helping the individuals to gain more control over uncertain situation. These increased levels of control then lead to more successful implementation of transformation processes, as perceived by the individuals in the enterprise under study. The implications for theory in this case are to expand the focus of cognitive engineering research to include more group and aggregate measures, and to extrapolate some of the individual-level considerations to the social groups of which they are a part.

8.3 Implications for Practice

The implications for practitioners – primarily managers and organizational leaders implementing large-scale transformation initiatives – have been woven throughout the discussion of findings and implications of the study. The results for the most significant variables inherent in transformation processes show that there is a clear bent towards more actionable factors, such as aspects about goals and plans. Specifically, the level of clarity of plans and goals, as well as the flexibility of those plans, are all-important in times of uncertainty and changes in work. Transformation processes are by nature difficult and anxiety-producing and the minimization of some of the sources of uncertainty and tension during the process helps increase the success of the transformation. More important than the number of goals or the availability of multiple plans to enterprise members is the *understandability* of those goals and plans – as measured through factors of clarity and flexibility.

An evident point in the findings from the survey and the interviews is the importance of multiple levels of leadership during transformation processes. Chapters 2 and 3 reviewed some of the previous research foci on leadership qualities, but few empirical studies have measured these factors. This study includes measures of action-orientation and accountability of leadership qualities, rather than some of the more ambiguous leadership factors, such as empowerment or vision. In fact, the findings here support the ideas, often articulated by the interviewees, that more important than communicating vision or grand ideas is the active and consistent display of involvement, support and action by the leadership. These leadership qualities foster a sense of "we are all in this together".

One could envision the use of the findings and the Model developed in this study to situations of current transformation implementation in multiple organizations. If the leadership and transformation process designers are concerned with the levels of internal reaction of the desired changes, the stages of the process set forth, and the ultimate transformation outcomes, they would be well-served to implement some of the lessons learned. For example, one could very practically translate the Transformation Model to a specific situation, including only the elements that are relevant to the current context. This could include specifying the misalignment forces that have caused the need for transformation, and answering questions about the recognition of the need for and implementation of the transformation process.

Once some of these variables have been identified, the findings of this study could be used in a prescriptive way to increase the probability of successful change across the entire organization. Specific attention to the multiple phases of the process, and the goals, plans and their levels of clarity and flexibility would all help improve the chances that the transformation would result in desired outcomes. Furthermore, the findings and Model results here indicate a clear need for leadership to move beyond accepted notions of communicating vision and broad-based goals, and taking an active, identifiable, consistent part in the execution of pieces of the transformation process.

8.4 Future Considerations

The Model developed for this study sets forth several factors and relationships that were not explicitly tested in the empirical research. These considerations, along with the theoretical discussions that preceded the presentation of the Model provide much fruit

for future research, related to the central themes in the current research – aspects of transformation processes that affect measurable outcomes of success. Below I detail several of these ideas, which are born in the study here, but require more focused attention to measure, and conceptual underpinnings.

- Organizational learning – this term was introduced in Chapter 2, and an initial idea of how it influences multiple aspects of transformation is included in the presentation of the Model. Further research could focus on how to measure and define different kinds of learning and how to model and test the relationships between those definitions and characteristics of organizational learning and transformation success.
- Reactive or proactive change as related to different forces and processes – the idea of whether massive change is instigated in anticipation of environmental changes, or in reaction to already-realized shifts was touched on in development of the Model. However, more specific modeling and subsequent testing of the relationships between these kinds of changes and the different misalignment forces and change process elements provides a rich area for future study.
- Time measurement and time series studies – elements of time are included in several parts of the present study. Real-time capture of transformation process elements, with organizations in the midst of these kinds of changes would provide a richer measurement of the impact of time on changes and their outcomes.
- Consideration of social network theory. Much work in recent years has revolved around the impact and influence of social networks at multiple levels of definition. Social networks can be described as specific to a group, such as a management team, or more broadly, as with connections between individuals in multiple enterprises. The influence of the social network in which one operates has recently come under empirical study, in order to help understand better some anomalous decision making patterns. These ideas and theories can easily be applied to situations of transformation as we consider why some leaders and management teams react in ways opposite to their counterparts, often when faced with similar forces or environmental influences. The consideration of social

networks could be specific to internal organizational groups, as well as interconnections with other organizations within and outside of a particular industry.

- Consideration of internal organizational incentive and reward systems. The previous chapter touched upon this topic briefly, and certainly elements of the Model and theoretical background discussed in Chapter 3 are relevant to these considerations. It would be great interest and contribute to current understanding of behavioral motivations and individual and group cognition to catalogue and measure different reward and incentive systems during situations of transformation. Certainly, human nature is such that individuals behave in ways that are in line with the rewards or punishments they are offered. Nonetheless, organizational theory and cognitively related research has shown that incentives and motivations are not consistently aligned with desired behavior. This area provides a rich context for continuing the study of how to elicit and implement drastic changes in organizational mechanisms, structure, and strategy, through individual behavior changes.
- Cultural considerations. Beyond the culture of an enterprise, which has been discussed in this document, there are environmental culture considerations. What impact does the country and its specific cultural norms, practices and expectations have on the recognition of the need for, and the implementation of large scale, long term transformation processes. This author is unaware of any studies to date that have investigated these questions, though there is a rich history of cross cultural studies and culture-specific analyses upon which to build more focused investigation of transformation.

These ideas are just a few that have been inspired by the present study and research. Enterprise transformation is clearly a phenomenon that is not abating, and that allows for multiple areas of research, in order to provide a richer understanding of an inherently uncertain and messy process. The present research begins a long-term research path, and sets up some of the conceptual ideas for many future research projects. The goals of

several of these studies and projects are similar if not the same – to provide empirical evidence and insight into how to design transformation processes that lead to less disruption, and more success for individuals and organizations. The contribution of the present research has been made clear as related to these goals, for both academic scholars as well as management practitioners.

Appendix A: Additional literature review

The following descriptions provide more in depth discussion and background on the research used in the dissertation to create a foundation for the development of new ideas and the integrated model. This appendix accompanies the more concise presentation of this research and literature in Chapter 2 and the sections are numbered as they are in the Chapter, in order to provide ease of reading and clarity of topics presented.

2.2.1 Foundational Change Literature

Much of the management literature that addresses issues related to transformation provides us with insight into several areas of change. For example, organizational behavior research has primarily focused on processes and implementation and the effect on individuals (Cummings & Worley, 2001; Judson, 1991). Strategy researchers have focused on the effect of organizational change on performance (Bartunek & Franzak, 1988; Gersick, 1994; Hannan & Freeman, 1984), though this topic has been less thoroughly analyzed. In addition, economists and organization theory researchers tend to focus their discussions related to change and transformation on issues about industry effects (Kwun & Cho, 2001; Lawrence, 1989), general growth perspectives or adaptation (Greiner, 1972), and population and institutionalism-inspired views (Dacin, Goodstein, & Scott, 2002). We have also benefited from insight into the causes of change, including the notion of technological discontinuities, environmental and industry changes and patterns, and other external shocks (Christensen, 1997; Hrebiniak & Joyce, 1985; Tushman & Anderson, 1986).

Tushman and Romanelli (1985) pioneered the sub-field of Punctuated Equilibrium theory as a lens through which to look at organizational change. Many successors have

used the prevailing theme of this theory, borrowed from biological evolutionary science (Gould, 1989). The 1985 piece set forth a comprehensive explication of how organizations grow and evolve over time – specifically through extended periods of incremental improvement or change, referred to as convergence, punctuated by short periods of massive, disruptive change that alters the fundamental nature of the organization, referred to as periods of revolution. This concept permeates much of the literature on organization change, and is the foundation of the work in this thesis. The periods of convergence are not static or devoid of change, but the fundamental culture, behavior, strategy and structure of the organization remain stable.

Tushman, Newman and Romanelli (1986) extend this work by delving into aspects of leadership that help an enterprise stabilize and react to changing external conditions. The relevance of leadership and firm characteristics is discussed in further detail below. The important point is that incremental change is differentiated from revolutionary change by examining changes *within or to* a particular system versus changes *of* the system, respectively. These authors use the definition as a starting point from which to discuss the different kinds of revolutionary change that can occur and many of the aspects during that process of transformation that can help increase the probability of success of the change and the enterprise. Connie Gersick (1994) expanded on this work by testing the theory and explicating the notion of deep structure as a way to develop more boundary conditions around what changes internal to an organization during these periods of revolution. She describes an explicit contra-position to a more prevalent, gradualist perspective on change, referred to above (Gersick, 1994).

Miller and Friesen's (1980) work on momentum and revolution is one of the most widely cited and referenced pieces in the organizational adaptation and growth literature. This piece and its conceptualization of change come from a similar perspective as the Punctuated Equilibrium studies. The authors measure 24 structural and strategy-making variables over time in order to test the relationships between changes in these variables and the concept of different stages of change – momentum and revolution. Their findings suggest that, as theorized, periods of momentum are characterized by few changes in the variables of interest. Conversely, periods of revolution (adaptation in this terminology) are characterized by large shifts in many of the underlying variables.

This is one of the cornerstone empirical pieces testing the notion of dramatic change periods. The findings substantiate the theoretical arguments and provide an empirical foundation upon which to build here in specifying and testing internal variables that are related to transformation processes. The work in the current thesis extends this empirical foundation by testing the relationships between process factors and enterprise outcomes as a result of change, while the Miller and Friesen piece relates more to the specification of periods of transformation (read: revolution).

Both in a 1993 (Greenwood & Hinings) article as well as in their definitive book, Dynamics of Strategic Change (1988), Hinings and Greenwood carefully describe and define transformation, or strategic change, and the variables internal to an enterprise that can be modeled and measured accordingly. The authors use this definition to describe prevailing archetypes that they argue can be used to describe the strategic orientation of organizations. Shifts in these archetypes, and thus in the orientation and strategy of an organization, are described as transformative. An archetype is defined as being "a

particular composition of ideas, beliefs and values connected to structures and systems" (Hinings et al., 1988). Patterns are the functions of beliefs, ideas and values that make up the interpretative scheme and are embodied in the structures and systems. The processes and systems to which they refer connect and activate structural frameworks.

The descriptions provided here are analogous to prevailing concepts of culture, especially in that the structures and systems are proposed to reflect a single interpretive scheme, including beliefs, and values (Hinings et al., 1988). Transformation is a concept referring to an overriding, system-wide shift or change of many levels within the company. These levels include practical, actionable items as tasks and activities, but are also framed by qualitative elements of the enterprise, such as the social beliefs and schema that are shared among the enterprise members. A transformation, or in the vocabulary of Hinings and Greenwood, an archetype change can only happen when a majority, if not all, of these levels within an organization undergo significant change, so as to be defined with another categorization after the change.

Amis, Slack and Hinings (2004) rely on the Hinings and Greenwood (1988) concept of archetypes to conduct a longitudinal empirical study on the elements of transformation. The Amis et al. piece takes off from the more conceptual definitions of archetypes and their value in the study of organizations, to choose elements of different archetype definitions and examine those in the context of enterprise change in quasi-public institutions in Canada. The authors find that the sequence of changes is important in the success of the transformation. In addition, they find that changing "high-impact decision-making elements early in the transition process" is important (Amis et al., 2004).

Pascale, Milleman and Gioja (1997) discuss the notion of revitalization as analogous to the concept referred to here as transformation. Their usage of the term is based on the punctuated equilibrium-type notion of defined periods of massive tumult and change. The four major factors that are referred to by these authors that are fundamental to revitalization are: strategy changes; rekindling of individual responsibility and creativity; changing of enterprise relations (internal and external); and shifts in organizational capability. These factors bring us close to variables that can help bound the situations of interest. In addition, specific measurable factors such as those discussed by these authors are helpful to the development of a model that specifies transformation process variables and their relationships with measurable outcomes, to be discussed below.

Nadler and Tushman (1989) also discuss several variables related to large-scale organizational change. Of most importance to the 1989 piece is a typology presented to distinguish between different types of large-scale change. The typology splits the types of change between those that are initiated proactively and reactively on one dimension, and between strategic change (transformation) and incremental changes. The strategic change portion of the typology, regardless of proactive or reactive stance, is of relevance here. In particular, we can relate notions of re-orientation and re-creation to the reactions of retail firms to different environmental and competitive shifts in recent years. These kinds of changes, as will be discussed more at length below, are most often reacted to post hoc, rather than anticipated. This has even the overwhelming force driving major enterprise transformation in the retail sector for the past several decades.

The characteristics described by these authors that define strategic change are similar to those already described here, and certainly tie into the Punctuated Equilibrium perspective. These characteristics include: multiple transitions, incomplete transitions, uncertain future state, and transitions over long periods of time. In addition, strategic change includes significant shifts in leadership, values, strategy and culture of the organization. Nadler and Tushman do not spend much time arguing for the definition, but rather explicate it and build upon it to develop their typology. This model is drawn on in further sections of the present work to build an integrated model of the variables instrumental in describing and measuring the effect of transformation processes.

Blumenthal and Haspeslagh (1994) provide another dimension to the definition of transformation by explicating *what* must change in order for a transformation to be realized. Their contention is that *behavior* of the majority of the individuals in an organization must change in order for one to consider a process or period in time transformational. The changing of tasks, activities, values, and understanding of goals (all elements of behavior) have all been described as instrumental to an enterprise-wide transformation. These authors provide another level of detail with regards to the aggregation of individual behavior change at the organizational or enterprise level. The institutionalization of changes in behavior across a majority of enterprise members provides this cumulative, and thus system-wide change. Subsequent sections below make reference to cognitive engineering and decision-making literature, thus explicating the connection to behavioral considerations.

Kathleen Carley, an author who is on the leading edge of interdisciplinary work, combining both theoretical and methodological aspects of engineering and management

study, has also defined transformation as a strategic reorientation, including, but not limited to re-engineering. Her study and explication of process factors as well as outcomes will be called upon in subsequent sections here, providing evidence of the efficacy of combining different disciplines and of the statistical importance of her findings. Her use of a dual level model (Carley, 1997) enables description of both operational and strategic level changes. These levels are specific to individuals and organizations, respectively. A strategic reorientation, or transformation, then, involves changes to both levels, not independent of each other.

In Rouse's "Theory of Enterprise Transformation" (2005b), he attends to many of the definitional and boundary issues discussed here. His categorization of transformation relies heavily on the difference between episodic and routine change, the former helping to define and recognize transformation. There is a discussion of the ways in which enterprises pursue these different kinds of changes, and the pursuit of routine change, though dynamic and innovative, is one that is reflected in the overriding strategy and structure of an enterprise. This is analogous to the incremental change routines discussed by (Brown et al., 1997). Rouse's notion of episodic change is one rooted in a loss of value of the enterprise and thus the need to change the state. There is a need for shifting or reinventing of purpose, objectives, and/or functions of the enterprise. The idea of activities is deeply embedded in this discussion, in that tasks and activities, and even the skills that successful execution of them require, must change in order for the higher level factors (purpose, objective, functions) to change. There is a cumulative effect implied here as well, as the more individual and basic activities of an enterprise must change as

one moves outward in scope towards transformation. The five parts of this Theory of Enterprise Transformation are defined as follows:

- Value deficiencies drive transformation.
- Work processes enable transformation.
- Allocation of attention and resources is integral to transformation.
- Management decision-making guides the transformation and its process.
- Social networks and their impact on decision-making behavior and choices.

Another contribution from the work of Rouse (2005b) is that of continuity of an enterprise. Transformation must take place within the context of continuity. Liquidation of a company, for example, may not be considered transformation of that original enterprise, as the growth and life of the organization is ceased. There may be transformation elements involved, but as a system-wide concept, there must be a recognizable, continuous system. The example called on in this dissertation of bankruptcy causing or even being one of the symptoms of transformation is clarified with this concept. Bankruptcies intend to allow an existing organization to change and reorganize itself on many levels *in order to continue its life.*

2.3 Misalignment Forces

Technology changes can imply a total operations process change, due to innovation in the production technology available, or in technology as a part of the offerings of an enterprise. Both Jacobson (1992) and Tushman et al. (1986) discuss this dichotomy and the differences inherent in changes to production versus those that affect the output of an enterprise. Jacobson's view is heavily influenced by Austrian economics and the Schumpeterian view of creative destruction. The process of discovery creates a constantly dynamic environment, through which the pattern of production or the

possibility for producing new output or old output in a new way is shifted, possibly revolutionized. In Jacobson's view, these effects of technological innovation stem primarily from the opening of a new source of supply of materials or a new outlet for products.

Tushman et al. (1986) expand on the notions of technological innovations as creative destruction to coin the phrase "technological discontinuities". Their perspective comes clearly from the Punctuated Equilibrium theoretical school – characterizing technological change and development as a process that is generally evolutionary, occasionally punctuated by discontinuous periods. They go on to explicate two main dimensions along which these periods of technological discontinuities can be divided. The separations come along the lines of product vs. process changes on one axis, and changes that are competence destroying versus competence enhancing on the other. This latter notion lends a rich view to the internal mechanisms that may be affected by technological discontinuities.

	Competence destroying	**Competence enhancing**
Process	New way of making given product	Order of magnitude increase in efficiency of producing given product
Product	Creates new product class Substitutes for existing product	Order of magnitude improvement over prior products built on existing know-how

Adapted from Tushman and Anderson, 1986

Competence enhancing innovations are those that significantly alter the existing price-performance relationship, through building on existing knowledge in a particular product class. These can occur in either process or product situations, though are likely

to pose less of a threat to existing companies, since they are able to build on their existing relationships, assets, processes and general knowledge. Nonetheless, there are several examples of incumbent enterprises that were threatened or destroyed because of such forces. Many of these failures may be due to issues in the timing of the recognition of the importance of this kind of misalignment force, and an underestimation of the effect on current and future operations.

Competence destroying innovations are more worrisome to existing companies, as they create situations where the skills and knowledge needed to compete and win in particular classes of services and products are dramatically altered. These types of changes can come in either process or product categories, and are often revolutionary in that there may not be much indication prior to their emergence. This also relates to the notions of recognition of the need for change within the enterprise, and the appropriate reaction to the force. In this case, new entrants can often have an advantage over incumbents, as their structure, processes, and culture encumber them. The sustainable competitive advantage shifts in the face of the competence destroying technological discontinuity. At their simplest level, many technologically-inspired changes produce the effects of increasing transparency, and information availability and access. Therefore, the ways in which work is conducted on many levels must change accordingly.

Tushman and Anderson (1986), as well as others, have conducted empirical studies testing these ideas, and support for the advantage of new entrants vs. incumbents has been found to be statistically significant in most studies. Tripsas (1997) conducted a longitudinal study that showed the effect of certain complementary firm assets on the ability for incumbents to compete in the face of technological discontinuities. Her study

extended the Tushman and Anderson discussion by specifying the kind of internal resources that are more likely to provide a firm with a competitive advantage during situations of transformation. Two related studies by Hill and Rothaermel (2003) and Rothaermel and Hill (2005a) made use of both the concept of different kinds of technological discontinuities and the enterprise resources (complementary assets) that help or hinder the competitive advantage that may be threatened as a result of transformation.

For the purposes of this dissertation, these studies are significant because in the retail sector, the majority of firms are incumbents, and their investments in traditional locations, workforce, and related resources are significant. The section below on the retail sector and its transformation over the past several decades includes a discussion of whether most of the innovations have been competence enhancing or destroying. Although this dichotomy will not be explicit in the categorization scheme used here, the important notion is that of process versus product (or service) technological changes.

During technological innovation of production processes, changes will radically alter the way that the firm produces its output. This kind of technology change will necessarily cause the organization to redesign its business processes and operations in order to successfully utilize the most cost effective, and thus competitive technology available.

In situations of technology innovations in the output of an enterprise, new technology initially changes the value propositions and offerings to marginal customer segments (those not providing highest margin or profit). However, as the technology evolves, the value to the most lucrative customers grows out of the original disruption

and organizations must adapt accordingly (Christensen, 1997). This kind of technology innovation may change both the underlying business processes used to produce the output as well as the output itself. Thus, reaction to it must be coupled with both operational and structural transformational approaches in order to be successful (Hill et al., 2003; Rothaermel & Hill, 2005c). In either situation, an enterprise facing significant technological innovation and development must adapt itself and its skills, processes and strategies to the implications of the new technology.

Tushman and Anderson (1986) discuss cycles of change as being characterized by times of ferment that are akin to the notion of revolutionary change explicated in the Punctuated Equilibrium work. These eras of ferment are catalyzed by technological discontinuities, and include development of the substitution of a dominant design that replaces the incumbent design for the technology. These designs could be in either the process or product of an enterprise. The emergence of a new dominant design begins the next era of incremental change, or convergence.

Regulatory changes are most evident in those industries that are deeply affected by government and industry rules, such as banking, law, government agencies, and other public or quasi-public organizations. Kwun et al. (2001) studied the effects of such regulatory changes on the Korean telecommunications sector. They specifically examined the internal resistance to change resulting from institutional factors such as structural arrangements and environmental constraints. Another example of the force of regulatory changes on an enterprise's value propositions and need for transformation is the repeal of the Glass-Steagall regulations that affected the banking and financial services industries (Davis, 2004; Hoover's, 2004). By eliminating the walls that divided

banks and investment houses, the government allowed financial services companies to expand their offerings and the markets they served, providing a tremendous growth opportunity. This in turn implied the need for transformation of the structure, strategy, skills, and processes that the enterprises in these industries employed in order to compete and succeed in a differently-structured industry.

Although outside the scope of this dissertation, it is important to mention that the impact of regulatory changes on enterprise transformation is perhaps most relevant and revolutionary in emerging market economies. Over the past two decades, much of the world has seen significant changes in the organizing economic models of whole areas of the world – Eastern Europe, and Asia-Pacific, especially China, among others. As these markets shift from regulated ones to more deregulated and competitive ones, the impact of changes in the regulatory scheme cannot be underestimated. Not only do existing enterprises need to respond to such changes in order to survive, but there is creation of whole new industries and enterprise models as the environment changes. This area provides vast opportunities for further research into how the changes in regulatory schemes and structures impact individual enterprises.

The emergence of regulatory changes, in either situation – established competitive economies such as the U.S., or emerging market economies – can be evolutionary, in that there are often indications of the changes to come for some time before implementation in the environment. Nonetheless, often the passing of a particular law, or emergence of a new form is identifiable at a particular point in time, and thus the impact may be revolutionary if the enterprise and its leaders have not anticipated the depth of the changes that will be necessitated. Though not an area of vast empirical research, several

scholars focusing on transformation have identified regulatory changes as significant. McGahan (2004), Romanelli & Tushman (1994), Meyer (1982), and Kelly & Amburgey (1991) have all included consideration of regulatory or legislative changes as part of their larger look at organizational change.

Market structure changes are more subtle and difficult to recognize, but have a tremendous transformational impact on an enterprise. The external changes to which the organization must adapt include changes in customer tastes and valued attributes of a product or service, new entrants competing with incumbents, global competition increasing, and economic forces that shift purchasing power of different market segments (McGahan, 2004). In general we can distinguish between those forces that affect the competitor, customer, or factor price environment of the enterprise. These changes then necessitate large-scale enterprise transformation in order to maintain or regain an advantage in the new environment. Often these market changes emerge over time, and are slow to affect the organizations involved because they are the result of many small, incremental shifts in tastes, demographics, competitive pressures, and other economic forces over time.

In general, it is important to delineate, or at least recognize the difference between market forces that are driven by changes in customer attributes, those that are driven by changes in factor prices (or markets), and those that are driven by competitive pressures. These three categories of market force changes are not mutually exclusive of each other. This dissertation will focus explicitly on changes in the retail sector over the last 20 years, which have been driven by combinations of these three market forces. This discussion will be amplified and data to support the contention of market forces as the

predominant misalignment force in the retail sector will be analyzed in subsequent sections.

Much of the research into environmental shifts and their transformational impact on the enterprise can be categorized under the broad rubric of market force changes. Tushman and Romanelli, in both their foundation piece on Punctuated Equilibrium (1985) and in a later empirical study (1994) delineated such effects on the enterprise. Their broad explanation of the need for change is brought about by general misalignment between the organization and its environmental requirements. However, the treatment is mostly due to shifts in values and slow, prolonged declines in performance that eventually necessitate large-scale transformation.

In discussing the different aspects of market force changes, some are due not to changes in customer tastes or expectations, but to changes in the cost of production factors, caused by something other than technological innovations. These changes can occur because of new discoveries of natural resources, emergence of new markets that shift the equilibrium prices, or new competitive models that cause a shift in the supply and price of inputs. Kelly et al. (1991), and Gersick (1991) both draw on the notion of changes in the prices and availability of factor inputs as causes for transformation.

Similar to market shifts, financial pressures that catalyze transformation are most often the result of an accumulation of many smaller, incremental changes and failures along the way, that at some critical point reach crisis for an organization. The most obvious state related to financial pressures is imminent bankruptcy, though several other financial situations can also necessitate a massive enterprise change. If we consider this most extreme case, we can understand that when faced with this situation, regardless of

the underlying reasons why an organization reaches this point of financial crisis, the internal structure must fundamentally shift to not only deal with the imminence of complete failure, but also to effectively compete in the future. The deep structure of the firm must reflect a new focus on first getting out of the financial crisis and then on continued operations and competition in its market. This may be coupled with or even instigated by any of the aforementioned forces, such as technology innovations or market shifts.

Although it may be hard to distinguish between a financial crisis and the need for change brought about by one of the misalignment forces discussed above, it is the contention of this author that the differentiating factor is one due primarily to time. The recognition of the need for change and its timing have been included in the discussion here, for all misalignment forces. So it is with financial crises. Independent of external forces and shifts, there are several internal decisions that may cause the erosion of value of an enterprise. Poor investment decisions, location mis-steps, and mismanagement of inventories, receivables, etc. are all examples of internal decisions and actions that may result over time in financial problems, especially in the retail sector. If these financial troubles are not dealt with at an early stage of value erosion, troubles may quickly snowball and an enterprise can find itself in a situation of insufficient resources to conduct its operations, and lack of support from the outside investment world to help in the crisis.

Nonetheless, financial crises often develop out of a miscalculation on the part of the enterprise decision makers about what an appropriate reaction to external forces is (Garrison, 2005). Especially in the case of reaction to evolving external situations, such

as the evolution of consumer tastes and buying patterns, mis-steps early on can be compounded as more resources are dedicated to a strategy or internal process that is misaligned with the environment demands.

2.4 Resistance to Change Characteristics

Meyer (1982) examined the effects of specific environmental jolts on a group of organizations. His study of a doctors' strike and the reaction by hospitals reveals that transformation was shaped by ideologies existing within the organization. The structures erected by hospitals to operate efficiently were shown to constrain the ability during crisis to change the underlying issues that caused the strike. In addition, Meyer found that slack resources aided hospitals in reacting quickly and effectively to the jolt. These findings are echoed throughout other studies.

Examining technological discontinuities more closely, Teece (1986) built on the research by Tushman and Anderson (1986) and others that examine the kinds of internal enterprise resources that are called on in situations of transformation. Similar to the studies on complementary assets, (Hill et al., 2003; Rothaermel et al., 2005a) Teece posits that different kinds of internal assets provide firms with more or less facility in reacting to technological innovations that cause large-scale change – specialized versus generalized assets. The findings and subsequent literature based on these theoretical positions, show that certain institutional environments, both internal and external to the enterprise, act as encouraging or hindering forces in a successful reaction to technological innovation. This dissertation will not draw on Teece's typology explicitly, but includes

the concepts of firm characteristics that moderate the relationship between transformation processes and outcomes.

Morrison and Milliken (2000) explicate the notion of resistance to change as related to management attributes at an individual level. Their contention is that managers' fear of negative feedback and the strength of implicit beliefs drives organizational silence, a central facet of resistance to change. In addition to some of the cultural beliefs held by managers, these authors also include discussion of firm characteristics that contribute to resistance to change, including high centralization of decision-making and lack of formal upward feedback mechanisms. Both these structural elements and the variables related to management belief systems are part of an inherent culture, which continues a cycle that reinforces resistance to change through attributes such as organizational silence.

Another area of study that relates to many of the topics discussed in the current study is that of top management change, or CEO succession. Several scholars have discussed the theoretical notions of the impact of leadership change (specifically CEO change) on transformation – either as an instigator of transformation, or as a fundamental part of the process of successful transformation. Many of the Punctuated Equilibrium studies and conceptual pieces discuss this very notion (Gersick, 1991; Tushman et al., 1985). One such study empirically evaluated the effects of top management (both team and individual CEO) succession and tenure and the likelihood of change (Boeker, 1997). The author posits relationships between performance declines, CEO succession and tenure, and top management team tenure and heterogeneity, and the initiation of change. Implicitly this includes the concept that the recognition of change is brought into an

enterprise by heterogeneous management teams and by fresh perspectives as facilitated by short management tenure. Boeker finds support for his relationships except for that of CEO succession and its positive impact on performance.

What is most interesting about this piece is the explication of the relationships between measurable variables and change initiation. Boeker draws on extant notions that performance declines, or erosions of value, are the main forces that cause the need for transformation. This relates back to the discussion above about misalignment forces. The structure of the top management team and the idea that leadership change, on some level, is necessary for a massive enterprise-wide change can be measured as firm characteristics acting as moderators, proposed in the model of transformation developed here.

Tushman and Smith (2002) propose the notion of organizational ambidexterity in their discussion of firm characteristics that are suited to allow for leveraging technological innovation. This concept includes an explicit kind of learning that must be included as part of the fabric of the enterprise from before the need for transformation arises. They also include previously discussed ideas about firm structure and different forms that are more encouraging of reaction to and implementation of discontinuous change. March (1991), in a piece that serves as the foundation to much of the current work on learning, discussed the differences between explorative and exploitative learning and the impacts of such perspectives on organization structure, success and inertia. Tushman and Smith (2002) extend this notion to posit that firms facing technological discontinuities, and thus the need for major change, are best served by structures and

learning ideologies that encourage both kinds of learning – thus, ambidextrous organizations.

Nadler and Tushman (1997) extend the discussion of internal firm capabilities and characteristics by developing an idea of strategic linking. In their well-articulated attempt to move beyond vague notions of design and communication, the authors delve into what is involved in workflow between different groups within an organization. They propose that both formal and informal mechanisms need to be in place for work related interdependence to be disseminated throughout a complex dynamic system such as an enterprise. Transformation necessitates a change in work processes and information flows between and within work groups. The notion of linking and interdependence is yet one more internal enterprise characteristic to which major change is related, and helps to determine a large-scale enterprise transformation. There is also an implicit notion of resistance to change in this concept. Interdependent team structures will be institutionalized within the organization having proved successful in the past, and if a change in certain misalignment forces, such as technology, implies the need for changes of the linking structures, there may be an additional level of inertia to overcome in order to execute a successful transformation.

Tushman et al, (1986) present one of the few studies that explicitly deals with many of the issues related to recognition of the need for transformation on the part of enterprise decision makers and leaders. Basing the discussion on the understanding that transformation comes about through periods of upheaval, or revolutionary change, the authors present the propositions that executive leadership is responsible for providing the direction to the enterprise to execute a match between the environment and the firm. By

recognizing the external misalignment forces that catalyze the need for major change within an enterprise, decision makers help provide a match between external opportunity and enterprise strategy.

There is an inclusion in the Tushman piece mentioned above of different predominant forces that cause the need for transformation – industry discontinuities, product life cycle shifts, and internal company dynamics – all of which create periods of "frame-breaking change". This kind of change can happen either in response to or in anticipation of changes in major environmental influences. Anticipatory or reactionary, leadership then must guide the enterprise to enact the kinds of structures, strategies and culture to fit with the new context, thus implementing major transformation through a long-term process. The guidance and commitment of the decision makers, once the recognition of the need for the change takes place, is fundamental to the success of the transformation.

Relating specifically to the notion of transformation caused by technological innovation, Tushman and O'Reilly (1996) examined what capabilities organizations need to possess internally in order to react to such changes successfully. The underlying concept of revolutionary versus incremental change is prevalent in this piece (as in most of Tushman's change research), and the authors contend that enterprises must attend to both of these kinds of change forces concurrently. The inertia that seems to drive much of organization resistance to change grows from previous success, given a particular strategy, structure, and culture. In order to adapt to environmental (specifically technological) misalignment forces, enterprise leadership must dramatically alter the fundamental culture and structure, thus overcoming the natural resistance to change

elements. This transformation is described as being rooted in a shift of control and reward structures that are used to balance the appropriate mix of cultural elements more suited to the changed environment.

2.7 Decision-making and Cognition

In discussing the importance of decision-making research to management studies, Eisenhardt (1992) provides a review of the prevailing paradigms. The major research paradigms that have guided scholars' studies of these kinds of decisions have thus far been primarily split into schools that focus on the rational limitations of individuals, stemming from seminal works by March and Simon (1958), Cyert and March (1963), Cohen, March & Olsen (1972), and Mintzberg (1976). The concept of bounded rationality and satisficing of decisions has led much of the thinking in this area. The gap in this literature is that there is not much focus on socially shared, or group decision making, which is often characterized by phenomena not readily explained by understanding individual cognition.

Other predominant theories, such as the "garbage can model" and the power-centered theories of decision-making have also had significant influence on the evolution of thought in this area. Both of these paradigms bring added levels of detail and understanding to questions of how and why enterprise-guiding decisions are made. The major contributions of both of these schools of thought are the focus on social and group decision-making phenomena. Nonetheless, there remains a gap between the social aspects and what we know about individual cognition, stemming from earlier rationality theories, or even psychology-based cognition literature.

Carley and Hill (1999) take a novel approach to some of the questions inherent in examining change in enterprise situations while including the perspective of decision-making paradigms and research. They begin a process of extending decision-making and cognitive considerations from an individual approach to a more distributed, or social context. This article, one among many by the first author that examines organizational issues through novel cognitive-focused approaches, introduces a cognitive network approach to looking at areas of consensus and convergence in different scientific subfields.

In another piece, Carley (1997) discusses many of the ideas about social cognition and its relation to organization change (termed "adaptation" in her work). Of most interest to this dissertation is the concept of learning as being a social phenomenon, rather than a purely individual one. Carley explicates that learning resides in the connections among organization personnel and tasks. This is directly related to the notion developed by Nadler and Tushman (1997), discussed above, about interconnections between and among work groups.

Carley (1997) specifically discusses the relevance of learning in situations of organizational adaptation and using the concept of different learning methods to answer certain questions about large-scale enterprise change. Among these questions are those of what leads to successful change, and whether organizations that are more successful in adaptation are characterized by certain designs and patterns of change. Carley (1997) takes a novel approach to answering these questions, by creating a simulation that can address the questions about organization design, and mapping the design characteristics to different organizational change models. She finds several inherent firm characteristics

that are more apt to exist in those organizations that are more successfully adaptive. Among these are increased flexibility, higher rates of small changes over shorter periods of time, higher rates of hiring than firing, and higher ratio of change to size of the organization.

In addition is the concept of a dual level change model specified by Carley (1997). The proposition is that large-scale change can and does happen on two fundamental organizational levels – operational and strategic. The former includes tasks performed primarily by individuals, whereas the latter is related to the design and direction of the entire enterprise. By categorizing these two levels, it allows researchers using similar differentiations to model and measure different aspects of an otherwise unwieldy and multi-level phenomenon. Furthermore, the explication of this dual level model also clarifies the connections between individual level variables and the aggregate enterprise level that develop out of those individual factors. The transformation model explicated in this dissertation includes an explicit consideration of the strategic level, with inclusion of the more operational level as part of the variables affecting relationships between different pieces of the model.

Carley, Prietula, and Lin (1998) continue the discussion of organizational change and the modeling of social cognition by focusing on organizational performance. The hypotheses in this paper are again related to organizational design and the match between design and the environment, especially subsequent to the emergence of misalignment forces. In addition, there is a supposition that overcoming the limits of bounded rationality can lead to better performance. The authors use computational models in order to represent the effects of different designs on performance, within the context of

environmental conditions. Ultimately, the findings support the notion that both design and cognition relate to enterprise-level performance. The use of different levels of analysis adds another dimension to this study and allows us to begin the process of modeling and measuring both individual and shared notions of cognition and organizational level phenomena such as transformation. Attention to cognition and decision-making processes may never be more important than in uncertain and risky times, as there is both opportunity for and risk to the enterprise.

2.7.1 Socially Shared Cognition

The reasons to move beyond the traditional ideas of individual cognition are well articulated by Hutchins (1991). The complexity and dynamics of modern life necessitate social coordination for completion of most tasks, and never more than in an organized, outcome-oriented enterprise. Hutchins seeks to explain the process of interpretation in group situations, an effort that is applicable to enterprises generally, and specifically during times of transformation. As he states: "Management teams in business and government are also systems of distributed interpretation formation" (Hutchins, 1991). We can examine organizations as a kind of widely distributed memory. Hutchins develops a simulation model to examine one particular phenomenon (confirmation bias) at a group cognition level. His findings support the ideas that groups have different cognitive properties than do individuals and that they can generate more diverse interpretations. However, implementation of interpretations and processes may be more challenging in group situations, because of the shared elements.

Lave (1991) brings the concept of learning to this literature as it applies to notions of socially shared cognition. Although she is focused on domains different from work groups and management, her concept of learning as a process of becoming a member of a sustained community is certainly relevant to understanding of transformation. Lave reviews the three main perspectives on situated experience in her discussion. These three driving schools of thought all have slightly different views on the importance of context in learning and cognition for individuals or groups:

- Cognition plus – includes explicit consideration of social interaction, though with the social world bracketed off from individuals.
- Interpretive view – includes the concept of "negotiation of knowledge" between individual and social context.
- Situated social practice – focuses on cognition and communication as situated in the historical development of ongoing activity.

All three of these perspectives lend insight into the ways in which individuals and groups learn and interact with their context in acquiring and processing information. Similar to using the Hollnagel COCOM (1993) as an organizing framework or metaphor through which to model some of the process factors of transformation, we can draw on these individual-level perspectives of learning to extrapolate to the enterprise level.

Levine & Moreland (1991) take the concept of socially-shared cognition and apply it directly to work groups. The overriding theme in their chapter is that social knowledge and shared task understandings make the need to participate fully in the group life fundamental for successful work groups. Much of this shared knowledge is transmitted through a common frame of reference, or culture of a group. This group culture embodies both task and social knowledge and provides a common stage upon

which the work is conducted and resistance among group members is minimized or eliminated. Although these authors focus on project- or product-focused groups, their ideas are directly applicable to higher-level enterprise culture.

For Levine and Moreland, culture is a set of both shared thoughts and customs within a group. Thoughts help guide action and provide a common interpretive framework for experiences of group members, and come from the search for answers by the group members. In times of transformation, the search for answers and the number of questions is heightened and increased, and thus the need for a shared set of thoughts through which to search and interpret answers is ever more important. This definition of culture mirrors that already discussed above, as well as the ideas about belief systems (Hinings et al., 1988), value systems, and culture discussed by both Christensen (1997) and Brown & Eisenhardt (1998).

2.8 Transformation Process Factors

Nut & Backoff (1997) discuss transformation processes as being driven by a strong leadership vision. Their view is that a comprehensive vision that describes a new way of doing things that is necessary to trigger the internal change process, which is inclusive of several stakeholders' views in the fashioning and implementation of the vision for change process. In the Transformation Model presented in Chapter 3, and its subsequent empirical testing, the variable of "employee involvement" is implicitly included within the factors of leadership support and commitment. The survey questions that have been combined under factor analysis to measure these variables include questions about employee involvement, as facilitated by the leadership. Nutt and Backoff

also propose a concept of "progressive coherence", which helps fit the different steps of a long term change process together, drawing out internal disagreements and tensions. Their contention is that the discussion of these kinds of process tensions can increase the productivity and therefore success of a transformation.

Drawing heavily on the work of Hinings and Greenwood (1988), Amis, Slack and Hinings (2004) conducted a longitudinal empirical study of the different important elements of change process. (See section 2.2 above for more detail on Hinings and Greenwood). Three elements were examined in their study – the pace of implementing transformation, the order of different enterprise parts that were changed, and the linearity (or lack thereof) of the transformation process. The authors found that all three elements are important in understanding the nature of complex, large-scale changes. One interesting finding was that the speed of the transformation implementation does not necessarily increase the probability of actual change taking place, though there are indications that speed later in the process may have more of an impact than earlier in the process.

Denis, Lamothe and Langley (2001) contributed to the literature on process and specifically the importance of leadership, by adding the element of coupling between leaders, the organization, and the environment. The authors described several levels of coupling:

- Strategic – between members of the leadership team
- Organizational – between leadership team members and the internal constituencies
- Environmental – between the leadership team and the organization's external environment.

Of these levels, strategic is absolutely necessary, while the other two levels are important, though very fragile and difficult to maintain simultaneously. Although there is not a direct application of these elements to the model presented here and the process elements studied in the survey, there is an inherent notion that not only is leadership important to the overall success of change processes, but that there are many levels to the *kind* of leadership that can drive direction and actionable consequences during times of change. More details of the idea of levels or kinds of leadership are discussed below, in the identification of specific measurable leadership factors included in the model and the survey.

One key study that brings in the element of temporal stages is featured in Kwun and Cho (2001). In their study of the effects of changes in the Korean Telecom industry, the authors model the process elements involved in the transformation. Among the variables discovered as relevant and having an impact on the outcomes of the changes are involvement of all layers of the organization, the elements of the institutional context, leader commitment to change, and the phasing and momentum (pace) of the overall process. These last two variables are most closely related to the notions of pacing and sequence discussed above. Although among the hardest to model and then measure, temporal elements emerge as some of the most important to understand in forming a more accurate and multi layered understanding of large-scale transformation processes.

Continuing the discussion of temporal considerations of change processes, Huy (2001) sets forth 4 ideal-type change processes. The foundation elements of the four types include several cultural and structural elements of the enterprise, including work processes and social relationships. The four ideal change types are:

- Commanding
- Engineering
- Teaching and change in beliefs
- Socializing

The author describes different elements inherent in each type of process, including leadership team and style, timing, level of participation, and consideration of assessment of outcomes and goals. Although the creation of this typology contributes some organization framework elements to the processes of transformation, there are some inconsistencies in the variables included in each type. Nonetheless, the discussion surrounding which of the types may be more or less suited to different external and internal enterprise elements is a good starting point from which to draw hypothesized connections between how enterprises change, their contextual factors, and the outcomes of a transformation.

Much of the work in the area of change processes has focused on aspects of enterprise leadership that can help drive major changes internally. Beer, Eisenstadt and Spector (1990) present a comprehensive framework that includes 6 overlapping steps that drive successful large-scale change processes. Much of the focus of these steps is the involvement of senior managers, who create the climate of change, specify the general direction of the enterprise, and spread lessons learned from the change process. The overarching multi-step process is heavily focused on communication, information sharing, and collaboration among many levels of the organization.

In a related piece, Beer and Nhoria (2000) elaborate on some of the ideas originally presented in the 6-step Beer et al. piece (1990), but take a more theoretic approach to the historical analysis of change processes. The authors draw out

overlapping and important change process factors that can be gleaned from the economic and organization-based schools of thought on change. Many of these variables have been studied at more detailed levels in various other pieces, but it is worth noting here the synthesis of literature and the parsing out of salient transformation process factors. Table 2.7 includes most of these variables and the literature in which we find them.

Pascale, Millemann and Gioja (1997) ground their process discussion in power literature that focuses on several aspects of leadership. They propose a normative process model that includes agility throughout all levels of the organization, other power notions, such as instilling mental discipline, and leading from a different place than in the past, and incorporating employees at all levels of the firm. These authors also explicitly mention learning, but in a focused condition that questions how people experience power and deal with conflict within their changing structures.

Another common theme throughout the literature on transformation processes is the balance of attending to ongoing operations, business processes, and goals while also attending to transformation processes and the shifts of structure, strategy, and culture. Majchrzak and Wang (1996) conducted a study of process-oriented organizations undergoing transformations to gain clarity on how the separation of resources and attention was managed. One of the key findings of this work is that successful transformation processes were able to cultivate a sense of responsibility in the employees. In order to change the nature of work yet keep the focus on the product of that work, it was helpful (or necessary) to structure jobs with overlapping responsibilities, and design collaborative work procedures. These authors also support the idea that there must be

clarity at all levels of the organization as to why the changes were taking place and what kind of collaboration and job responsibilities were needed after the transformation.

The issues of participation, buy-in, collaboration, and communication surface in many studies of organizational change and transformation. One particular study isolated these issues by discussing and measuring the constructs of organizational justice. Novelli, Kirkman, and Shapiro (1995) elaborated on the variables of organizational justice to add it to the Beer et al. (1990) 6-step model of change process. Their argument was that perceived justice is necessary on the part of those who were to live with the effects of major change. There are several types of justice, the explanation of which is beyond the scope and boundary of this dissertation. The relevance lies in the findings that justice at any level – distributive, procedural or interactional – can lend more clarity and ultimately success to enterprise transformation.

Although Beer et al. (1990) constructed a multi-step change process model that has subsequently been used as a guiding framework for other scholars, several other authors have focused their efforts on developing different, yet similar staged process models. Mento, Jones and Dirndorfer (2002) provide a review of the three paradigmatic, best-known models of change processes. Kotter (1996) outlines 8 steps that begin with establishing a sense of urgency and end with institutionalizing the change. His contention is that power and motivation are the forces that can overcome internal enterprise inertia and resistance to change, if executed correctly.

Jick (1991) specified 10 steps, beginning with analysis of the organization and the need for change, and ending with reinforcing and institutionalizing the change. Obvious overlaps exist here with the Kotter steps. The final step of institutionalizing the change

also reminds us of the early work of Lewin (1947), who specified the need for "re-freezing" after movements in group dynamics had been made. Other scholars, though perhaps not as widely discussed or implemented, use similar multi-step processes and focus many of those steps on vague notions of power, leadership, communication, collaboration, and different time horizons.

Appendix B.1
Interview Protocol

Definition questions:

- How do you define transformation?
- What distinguishes a transformation from any other incremental business change, such as process improvements, new business unit formation, etc?
- Who are the key stakeholders during a major transformation?

Questions about forces and recognition of need for change:

- Is transformation intentional, or can you find yourself in the middle of a transformation without having realized it before?
  - Is transformation something you decide to do or something you recognize you're doing?
- To what extent do external forces & decisions typically impose transformation?

Contextual questions about industry/external environment:

- What pressures from the external environment were present before, or during the transformation?
  - Government – legal and regulatory environment
  - Market
  - Competition
  - Customers
  - Technology changes
  - Other supply chain partners
- What effect (if any) did the transformation have on the external environment?

Process questions:

- What role does leadership play in both readiness and successful pursuit of transformation?
- Who led and internally supported the transformation in order to reflect the importance and vision to the rest of the enterprise and other stakeholders?
- How are transformation vision and goals best communicated to all stakeholders?
- How do you engender an overall buy-in and participation in the transformation?
- During a transformation, (roughly) what percentage of company resources is spent on the process of transformation?
  - Personnel
  - Physical assets
  - Time/energy
  - Other
- How do you separate the attention/energy dedicated and directed towards the transformation while still directing the appropriate resources to the execution of the strategy and operations during the transformation?
- What are roles of key stakeholders?
- What methods and tools work best?

    - With or without consultants?
- Is it necessary to establish an overall vision before beginning the process or is it something that is refined along the way?
- What kind of timeframe is put on the process in order to meet the desired goals?
    - Multi-stage process and measurability at each stage?
- Where/How do you strike a balance between flexibility and sticking to the goals and vision of the transformation originally outlined?

Outcome questions:
- How are the goals of transformation framed and chosen?
- How do you decide on measurable outcomes?
    - Examples of some
- When do you decide on those outcomes/goals/success metrics of the transformation?
- When do you begin measuring?
- What are critical success factors? (measures)

General/anecdotal questions:
- Can you provide a success story?
- Can you provide a failure story?
- What lessons did you learn?
- What were your toughest issues?

Retail sector specific questions
- What effect has Wal-Mart and its model had on the industry?
- When did this effect begin to make itself known?
- How does the rest of the industry have to compete in order to challenge the Wal-Mart model?
- What impact do the relationships with suppliers have on choices made?
- Do suppliers/consumer product companies ever instigate the need for transformation?
    - Or vice versa – do the retailers ever instigate the need for transformation within the consumer products companies?
- What are the current most impactful issues in the industry that will/may cause massive transformation going forward?

Appendix B.2
List of companies represented by interviews

Dollar General

Federated Department Stores

Ivan Allen Workspace

KPMG

Kimberly Clark

Linens and Things

Manhattan Associates

Newell Rubbermaid

Proctor & Gamble

Reebok International

Rival

TJX Corporation

UPS Supply Chain Solutions

Appendix B.3: Full Survey

Enterprise Transformation Survey
"Capturing Knowledge About Large-scale Change"
Experience of Managers/Executives in Retail Enterprises

Dear Survey Participant:

Thank you very much for your time and participation in this survey. Your insights and experiences are invaluable.

The survey is a research tool for use in the PhD dissertation of Dominie Garcia, Tennenbaum Institute, Georgia Institute of Technology. The focus of the Tennenbaum Institute is the research and dissemination of knowledge and skills for enterprise transformation.

The information gathered through the survey will be used for research purposes only and will be kept completely confidential. All survey respondents are entitled to see the aggregated results of the survey.

The survey is split into several categories that ask questions specific to your experiences with transformation, as defined below. As with all business and management issues, the lines between these groupings are sometimes ambiguous, and therefore should not be interpreted as a reflection of the need to separate your consideration of the topics from one another.

For the purposes of this survey, an enterprise transformation is defined as:

A major organization- or enterprise-wide change that affects business processes, strategy, structure and culture, or multiple combinations of these elements.

A few examples of the kinds of changes described by this definition are:
- A merger or acquisition of another company, involving integration of the two organizations;
- A restructure or reorganization of the organizational hierarchy, functions, and/or reporting structure;
- A change in corporate strategy to include new markets, either for product/service or geographical.

The survey should take no more than 20 minutes. You can skip over any questions that you choose. You can take it at various intervals – simply save your work before logging out of the system. You can see the results of all the survey respondents by clicking on the link found on the thank you page that appears when you submit your results.

Please direct all questions, comments and concerns to:
Dominie Garcia
Office: 404-385-6269
Mobile: 404-449-5158
Email: dgarcia@isye.gatech.edu
Website: www.ti.gatech.edu
Feel free to contact me any time for clarification or more background on this survey

Once again, thank you for your response. Please press submit at the bottom of the page to continue to the survey questions.

The Institutional Review Board at Georgia Tech has approved this survey. Contact information is as follows:
Office of Research Compliance
Research Administration Building
505 Tenth Street, NW (1st Floor)
Atlanta, Georgia 30332-0420
404.894.6944 (Tel)
404.385.2081 (Fax)

General transformation questions

1. Have you been part of a large-scale enterprise transformation at this or another company?
    - Yes, or no

2. Recognizing that there may not be a defined "end", how long did the transformation process take, from the determination of the need to change?
    - Under 1 year
    - 1-2 years
    - 2-3 years
    - Over 3 years

3. Was the inception of transformation delineated (clear decision) or emergent over time?
    - Clear decision
    - Emergent over time

4. Did you believe the transformation was necessary?
    - Yes or no

5. Why or why not?

6. Did you believe that you had decision-making authority over the tasks and/or procedures required to make the desired changes (within your part of the overall process)?
    1. 0 to 20% of the time
    2. 21 to 40% of the time
    3. 41 to 60% of the time
    4. 61 to 80% of the time
    5. 81 to 100% of the time

7. Please provide a brief description of your most recent experience with transformation as described above: *(A major organization- or enterprise-wide change that affects business processes, strategy, structure and culture, or multiple combinations of these elements)*:

8. Have you experienced a long-term, organizational transformation process in another organization or in this same organization, but under different circumstances, prior to the most recent change?
    - Yes or No

9. Did your previous experiences with transformation help you in going through the most recent process?

- Yes or No

9a. Feel free to elaborate here:

10. For the following questions, please refer to one specific transformation process of which you were a part. Comments about your choice of time period and situation to reference can be provided here:

Goals

For the questions below please answer according to the following scale:

1. **0 to 20% of the time**
2. **21 to 40% of the time**
3. **41 to 60% of the time**
4. **61 to 80% of the time**
5. **81 to 100% of the time**

11. Were the end goals communicated clearly?

1. 2. 3. 4. 5.

12. Did the goals change during the process?

1. 2. 3. 4. 5.

13. Did you feel the goals aimed for were reasonable given the time lines set forth for implementing the changes?

1. 2. 3. 4. 5.

14. Were there multiple goals that had to be worked on at the same time?

1. 2. 3. 4. 5.

15. If yes, how many at any given time, on average?

Plans and procedures

For the questions below please answer according to the following scale:

1. **0 to 20% of the time**
2. **21 to 40% of the time**
3. **41 to 60% of the time**
4. **61 to 80% of the time**
5. **81 to 100% of the time**

16. Were there plans and identifiable actions developed to execute the goals of the process?

1. 2. 3. 4. 5.

17. Was the overall process designed to have different stages or parts over a longer period of time?

1. 2. 3. 4. 5.

18. Were there clear plans and procedures available during the multiple stages?
1. 2. 3. 4. 5.

19. Were the transitions between the stages clear?
1. 2. 3. 4. 5.

20. Was there flexibility in the process in terms of ability to move back and forth between plans as necessary?
1. 2. 3. 4. 5.

21. Did you have to come up with your own plans to affect the required changes?
1. 2. 3. 4. 5.

22. Did the plans provided to you (if any) make sense given the goals that were to be achieved?
1. 2. 3. 4. 5.

23. To what extent did you have to reference pre-existing organizational procedures and/or plans in executing the needed changes?
1. 2. 3. 4. 5.

Temporal Elements and Considerations

All questions in this section refer specifically to the most salient, or recent experience you have had with large-scale transformation processes - please refer to one specific transformation process of which you were a part.

For the questions below please answer according to the following scale:

1. **0 to 20% of the time**
2. **21 to 40% of the time**
3. **41 to 60% of the time**
4. **61 to 80% of the time**
5. **81 to 100% of the time**

24. Were there multiple stages set forth during the process?
1. 2. 3. 4. 5.

25. Did you feel there was sufficient time to go through the changes?
1. 2. 3. 4. 5.

26. Did you feel there was sufficient time to execute the different plans?
1. 2. 3. 4. 5.

27. Did lack of time factor into your ability to complete required change plans?
1. 2. 3. 4. 5.

28. Was the process overwhelming given time requirements in other parts of your job?
1. 2. 3. 4. 5.

Employee involvement

For the questions below please answer according to the following scale:

1. **0 to 20% of the time**
2. **21 to 40% of the time**
3. **41 to 60% of the time**
4. **61 to 80% of the time**
5. **81 to 100% of the time**

29. Was there enthusiasm for the transformation throughout the organization?
    1. 2. 3. 4. 5.

30. Was there employee buy-in and involvement in designing the process?
    1. 2. 3. 4. 5.

31. Was there employee involvement in developing the plans and procedures?
    1. 2. 3. 4. 5.

32. Was there employee involvement in developing the goals?
    1. 2. 3. 4. 5.

Leadership questions

For the questions below please answer according to the following scale:

1. **0 to 20% of the time**
2. **21 to 40% of the time**
3. **41 to 60% of the time**
4. **61 to 80% of the time**
5. **81 to 100% of the time**

33. Was there a driving vision of the transformation communicated to the entire organization?
    1. 2. 3. 4. 5.

34. How was this communicated? (not answered on scale – short answer, fill-in)

35. How often throughout the transformation process was the vision communicated and/or repeated??
    1. 2. 3. 4. 5.

36. Did you feel that the leadership and top management were committed to the process?
    1. 2. 3. 4. 5.

37. Do you think the changes were in line with the overall direction the company should take?
    1. 2. 3. 4. 5.

38. Did the leadership provide example(s) of energy/enthusiasm in their behavior?
    1. 2. 3. 4. 5.

39. Did the leadership communicate about the process frequently (as time unfolded)?
1. 2. 3. 4. 5.

40. What is your overall assessment of the leadership during this process (transformation)?
1. very negative 2. negative 3. neutral 4. positive 5. very positive

Outcome questions

For the questions below please answer according to the following scale:

1. **0 to 20% of the time**
2. **21 to 40% of the time**
3. **41 to 60% of the time**
4. **61 to 80% of the time**
5. **81 to 100% of the time**

41. Were the intended outcomes of the transformation process made clear?
1. 2. 3. 4. 5.

42. Were the outcomes realized?
1. 2. 3. 4. 5.

43. What were the intended outcomes of the transformation?

44. Which of these were realized?

45. Overall, how successful would you rate the transformation process in terms of realizing its intended outcomes?
1. very successful 2. moderately successful 3. no real effect
4. moderately unsuccessful 5. very unsuccessful

46. Has the transformation changed your vision of the company strategy, in a desirable way?
1. yes
2. somewhat
3. no

47. Has the transformation changed your daily activities, in a desirable way?
1. yes
2. somewhat
3. no

48. Do you believe the transformation has changed the overall culture of the company, in a desirable way?
1. yes
2. somewhat
3. no

Professional questions:

Please note that these questions are solely for the purposes of gathering aggregated data on managerial levels and experience of respondents. This information will be kept confidential, with no way public reporting of the information.

49. Please include here your email address and company name: This information will be kept completely confidential, not shared with anyone, and used for aggregating company responses and sharing non-individual analyses with participating companies

50. Revenues of the company last fiscal year?

51. How would you describe the major activities of your company?

52. Your organizational title:

53. Your roles and responsibilities:

54. Years in industry (retail):

55. Number of companies worked for in current industry (retail):

Appendix B.4
List of survey questions to be coded before analyses

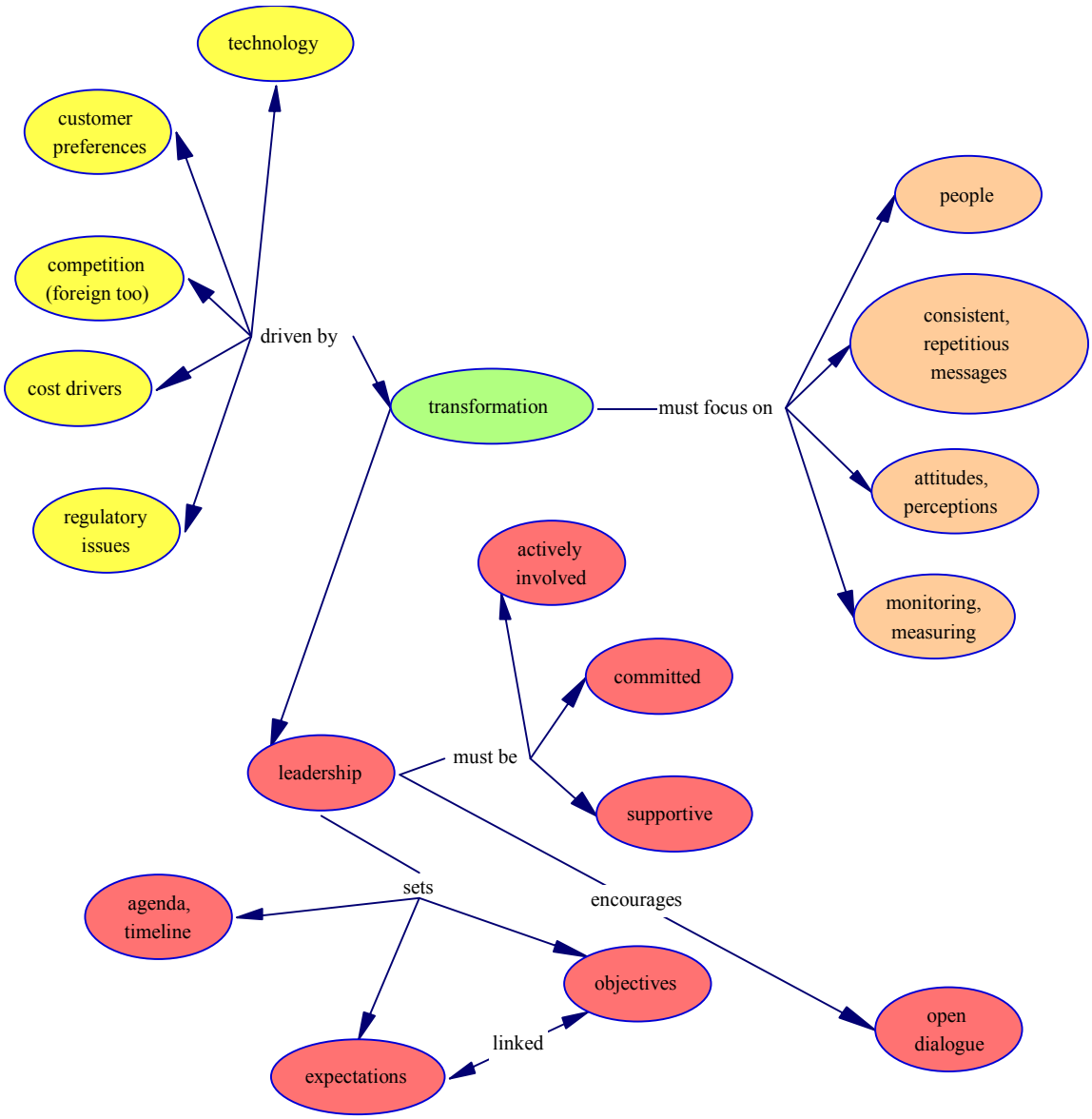
Before the principal component analysis for final sample results could be conducted, several actual coding changes to the data had to be performed. The following lists the questions that had to be coded post-hoc in order to use the responses in the final statistical analysis. Other than these changes, all questions were measured on a five or three point Likert scale, with a higher number measuring a more positive perception or higher level of the factor/variable being measured. The choice of options to provide for the answer scale was reviewed several times before final survey dissemination and the Likert scale chosen for a majority of the questions divides the answer space evenly among all five choices thus providing ordinal data.

- Question 1:
    - yes = 1, no = 0
- Question 2
    - < 1 year = 1
    - 1-2 years = 2
    - 2-3 years = 3
    - >3 years = 4
- Question 4:
    - Yes = 1, no = 0
- Question 8:
    - Yes = 1, no = 0
- Question 9:
    - Yes = 1, no = 0
- Question 15: These answers were given in short answer form. The words used to describe the number of goals were then translated into a number scale according to the following:

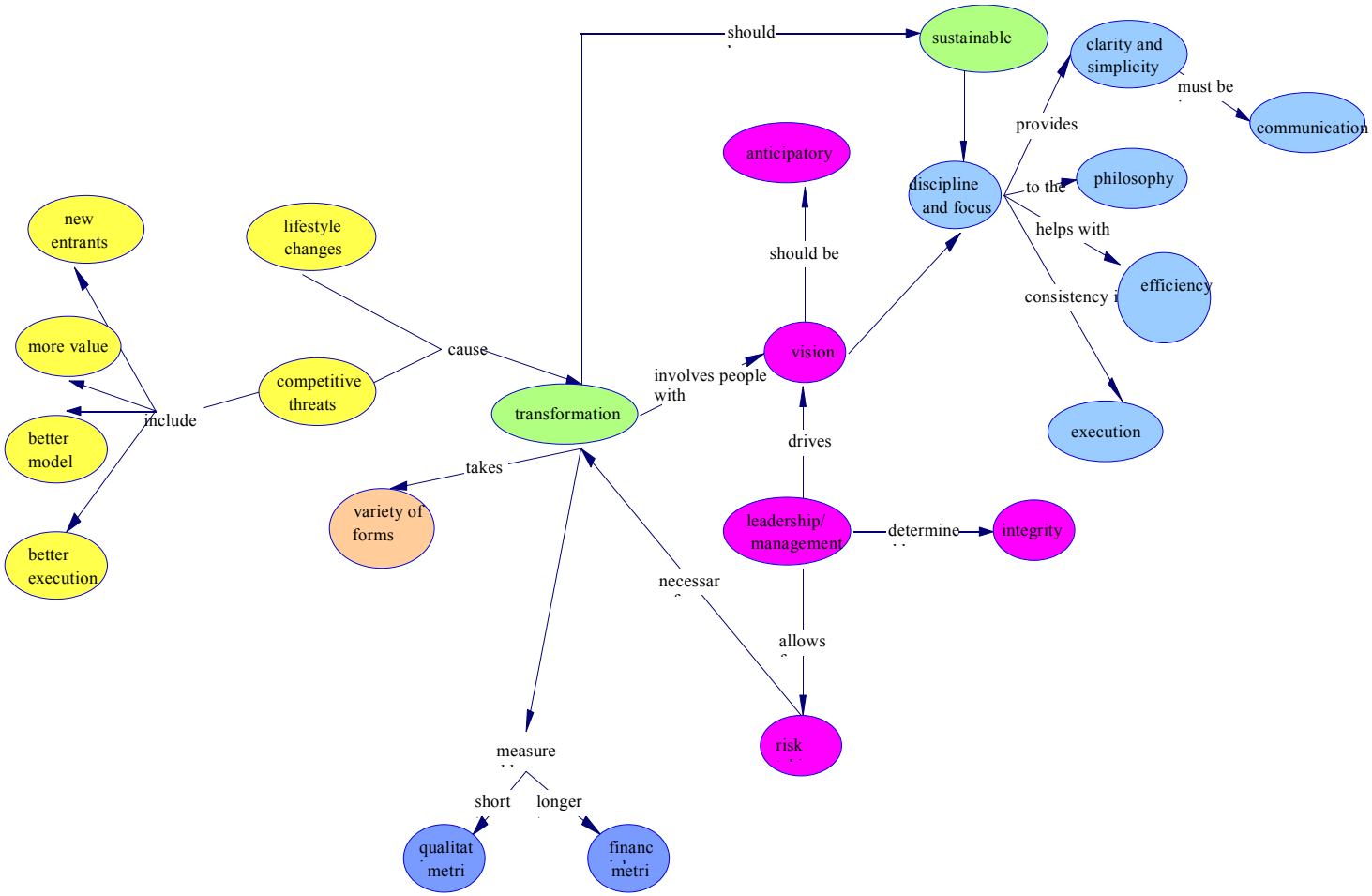
- x < 2 = 1
- 2 <= x < 4
- 4 <= x < 6
- 6 <= x < 8
- x >= 8

- Questions 27 and 28: both of these had to be reverse coded, as the lower numbers were positive vs. the higher numbers for the rest of the answers. The reverse coding was done according to the following scale:
  - 1 = 5
  - 2 = 4
  - 3 = 3
  - 4 = 2
  - 5 = 1
- Question 35 – even though the answer scale isn't the same as the others, it still represents a higher number measuring a more positive response, so can be used in the same way.
- Additional notes: questions 46, 47 and 48 were answered on a three point Likert scale, rather than a 5-point, and have a positive value for smaller numbers (reverse coded).
- Question 45 was asked on a different scale, but needed to be reverse coded in order to be used in the final analysis and hypothesis testing. After the coding, the higher the number, the more positive response. This question was one of the three measures of transformation outcomes/success.

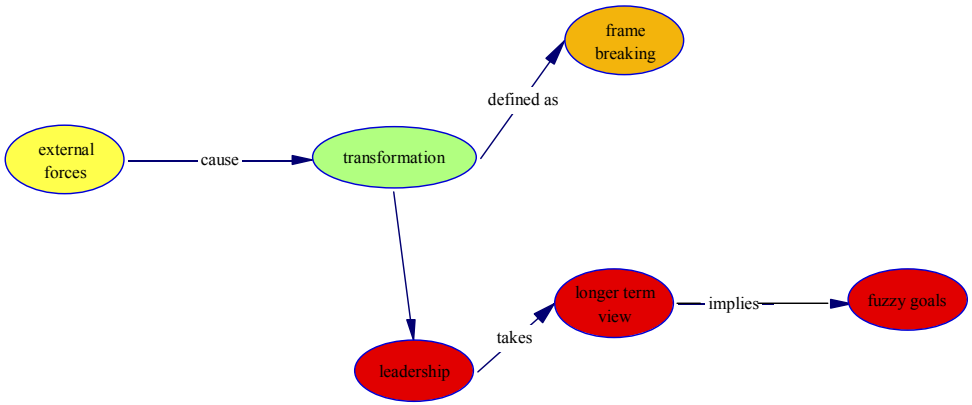
Appendix C.1: Individual Concept Maps
Example 1 – General Transformation Concepts



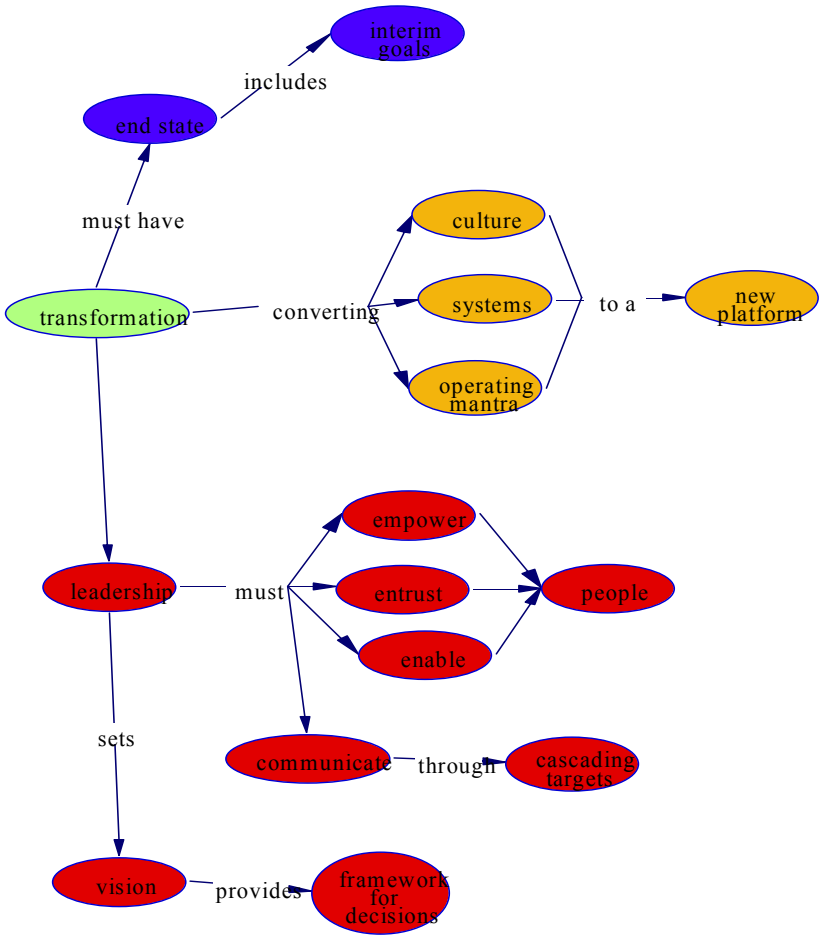
Appendix C.1: Individual Concept Maps
Example 2 – General Transformation Concepts



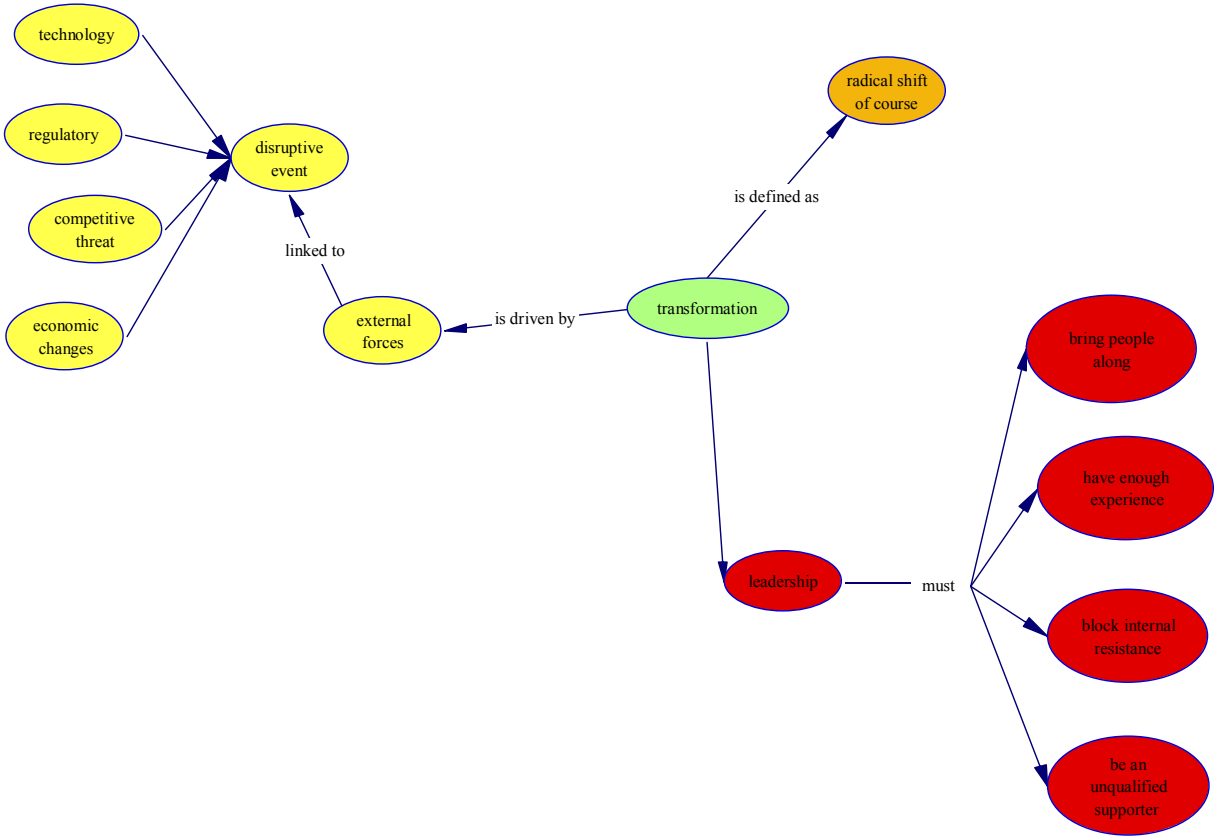
Appendix C.1: Individual Concept Maps
Example 3 – General Transformation Concepts



Appendix C.1: Individual Concept Maps
Example 4 – General Transformation Concepts



Appendix C.1: Individual Concept Maps
Example 5 – General Transformation Concepts



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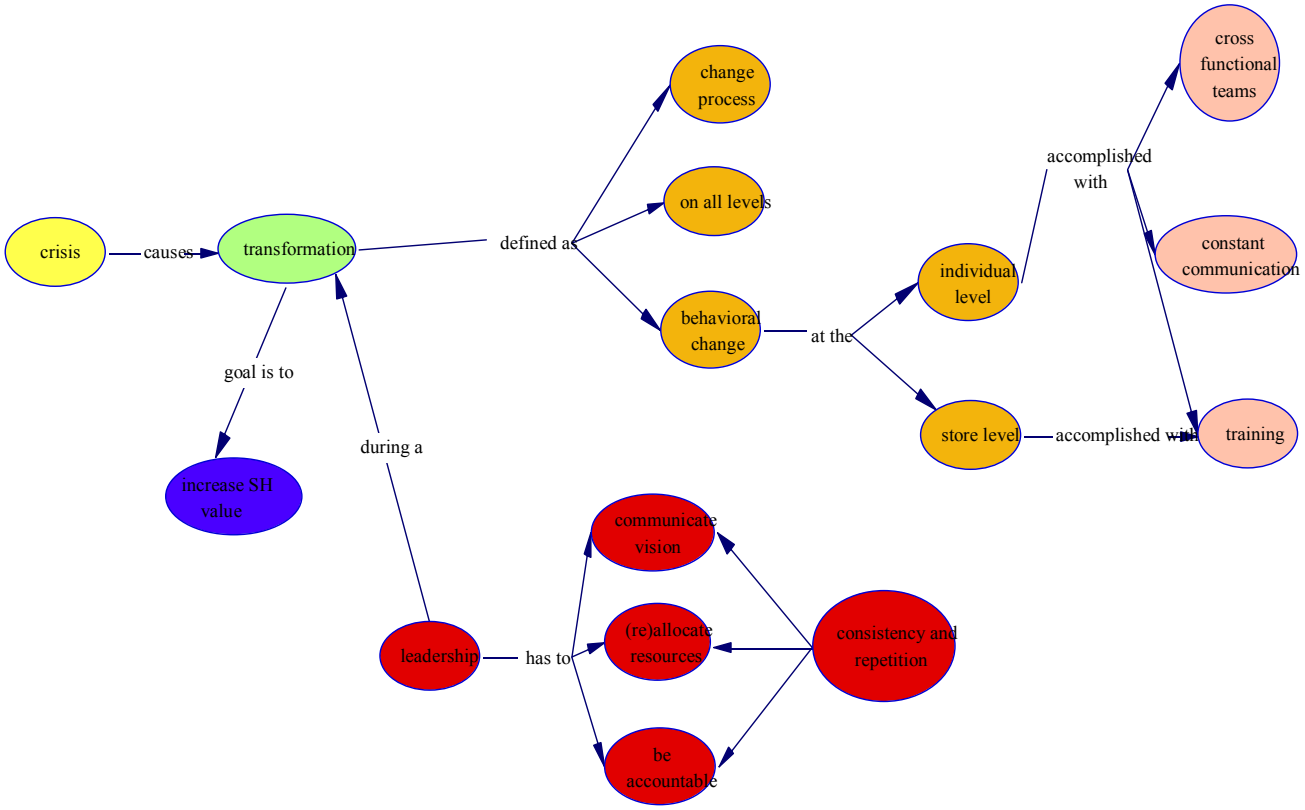
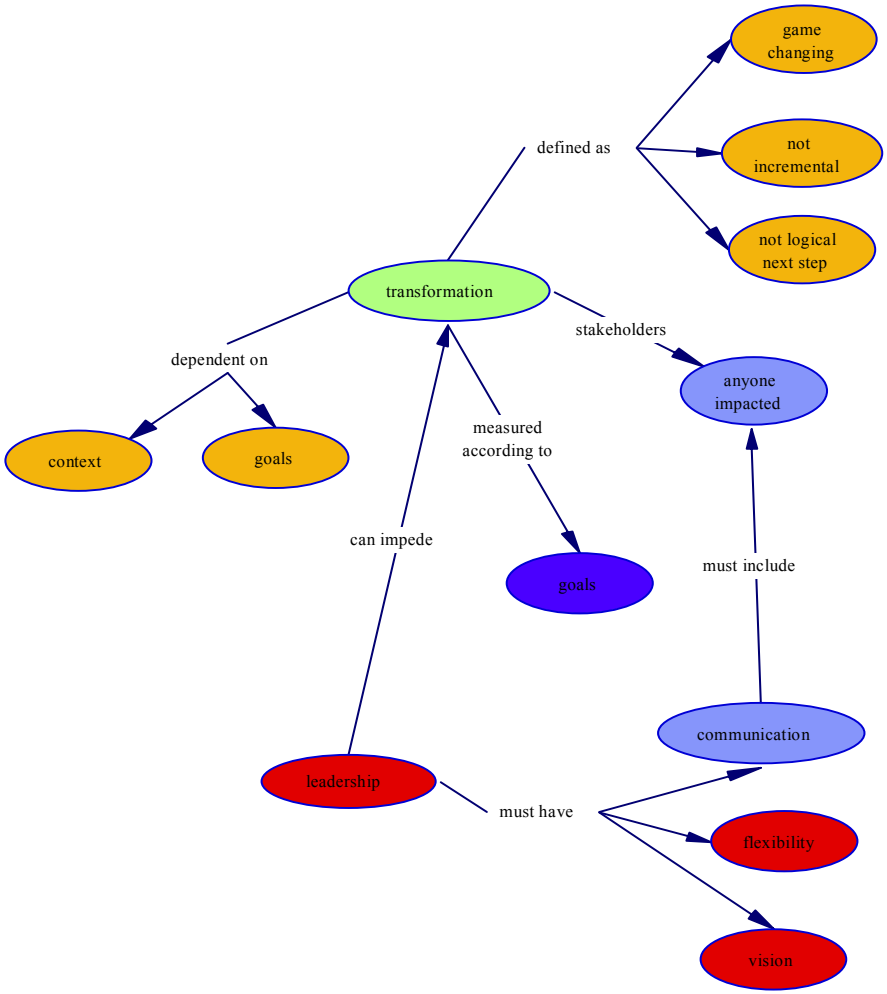
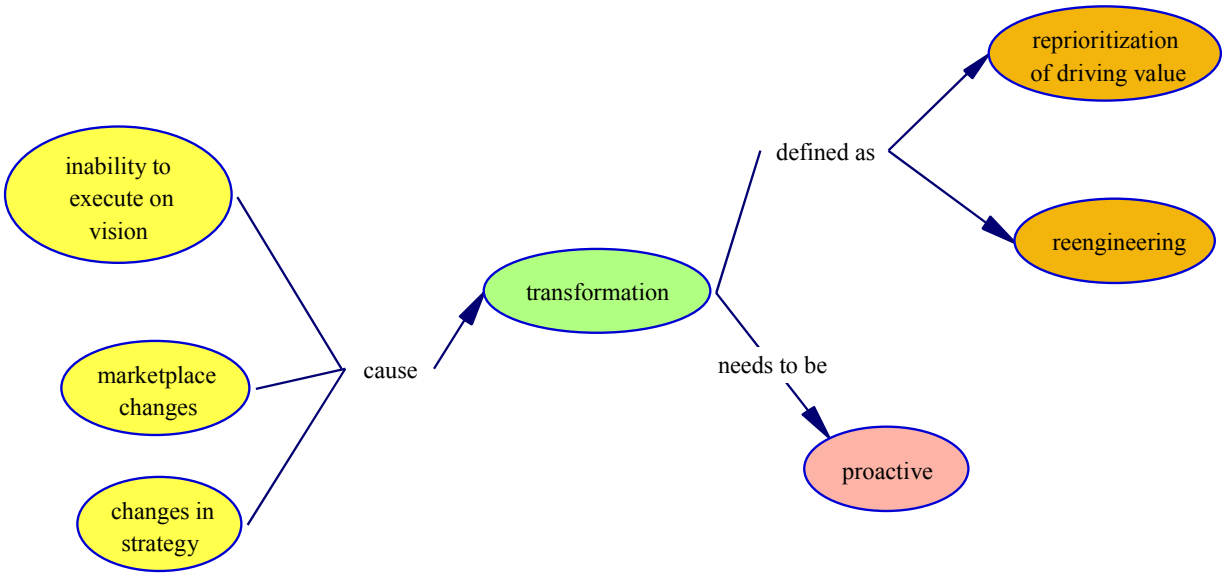
Example 6 – General Transformation Concepts



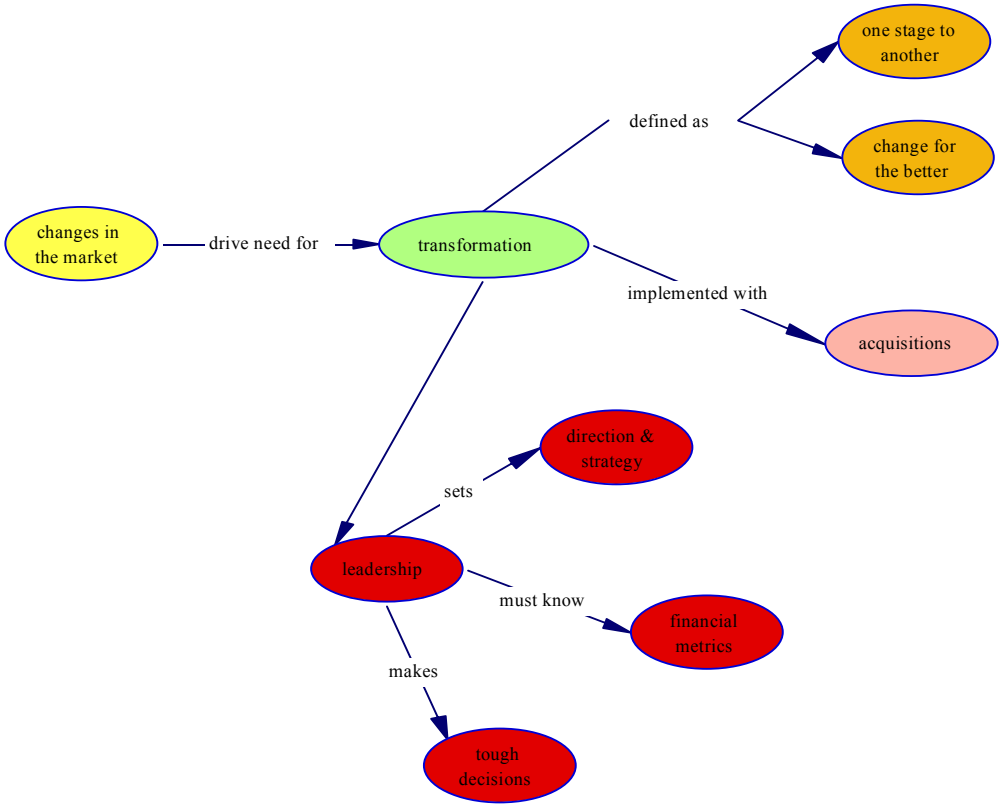
Appendix C.1: Individual Concept Maps
Example 7 – General Transformation Concepts



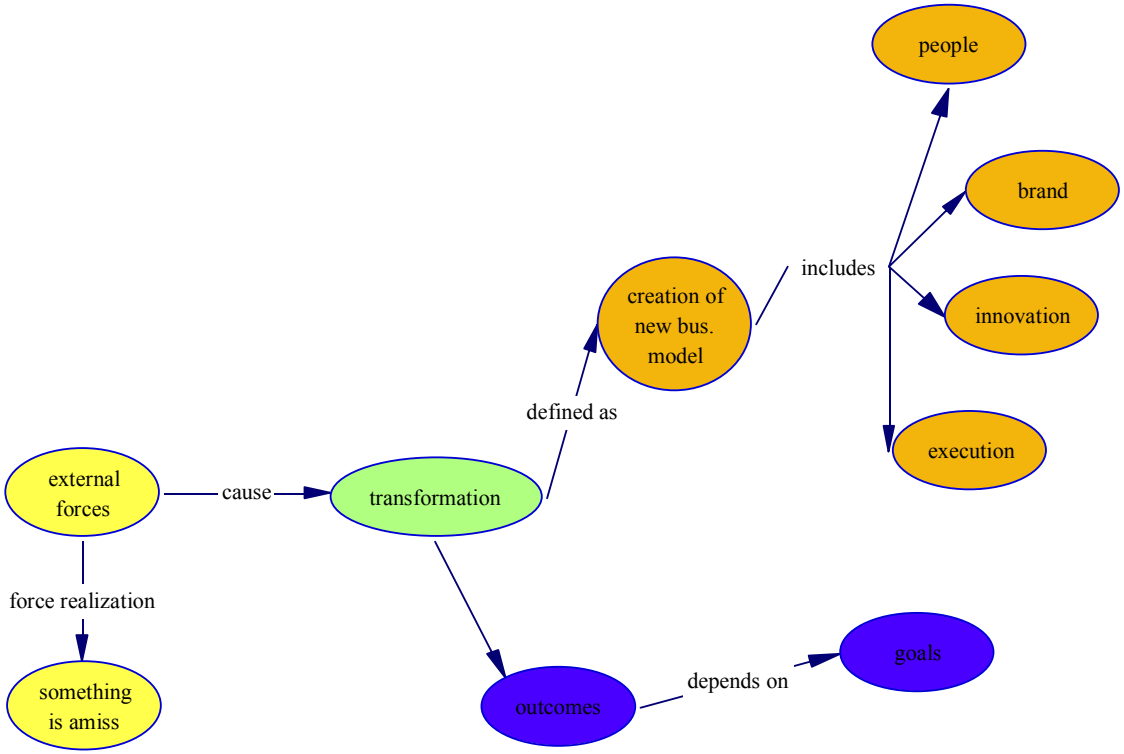
Appendix C.1: Individual Concept Maps
Example 8 – General Transformation Concepts



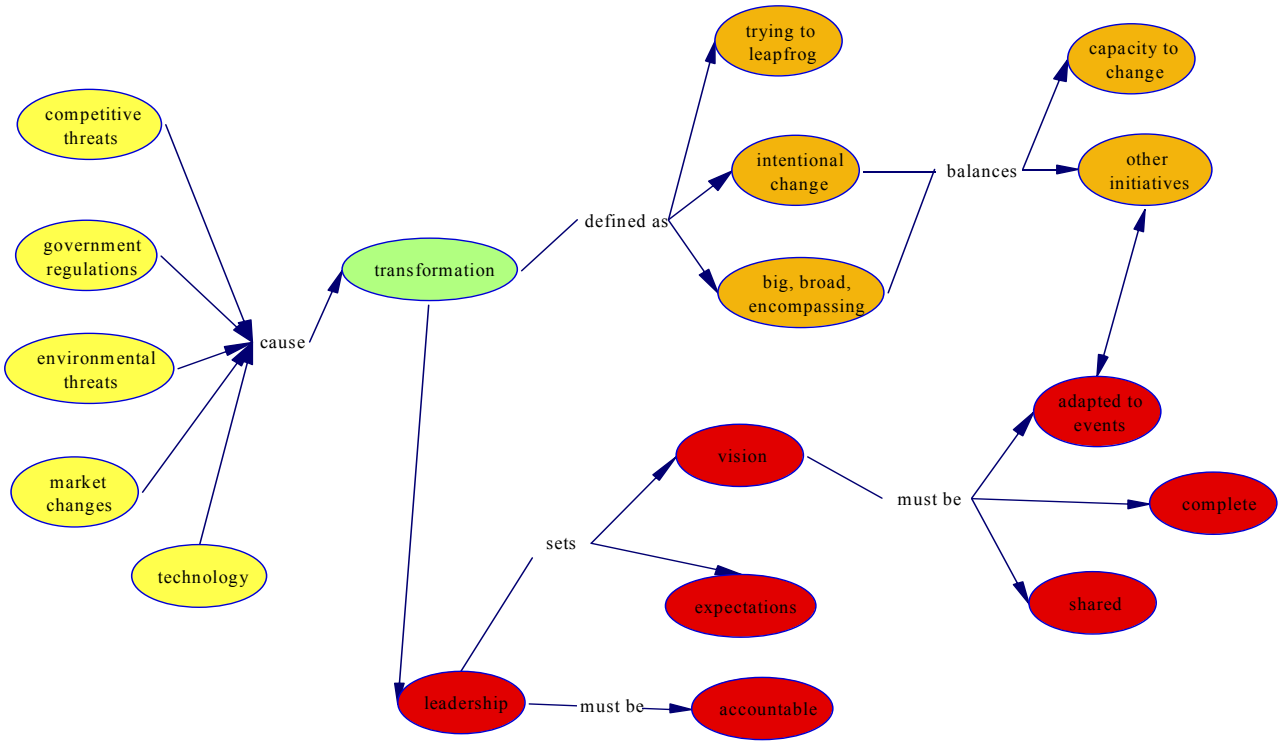
Appendix C.1: Individual Concept Maps
Example 9 – General Transformation Concepts



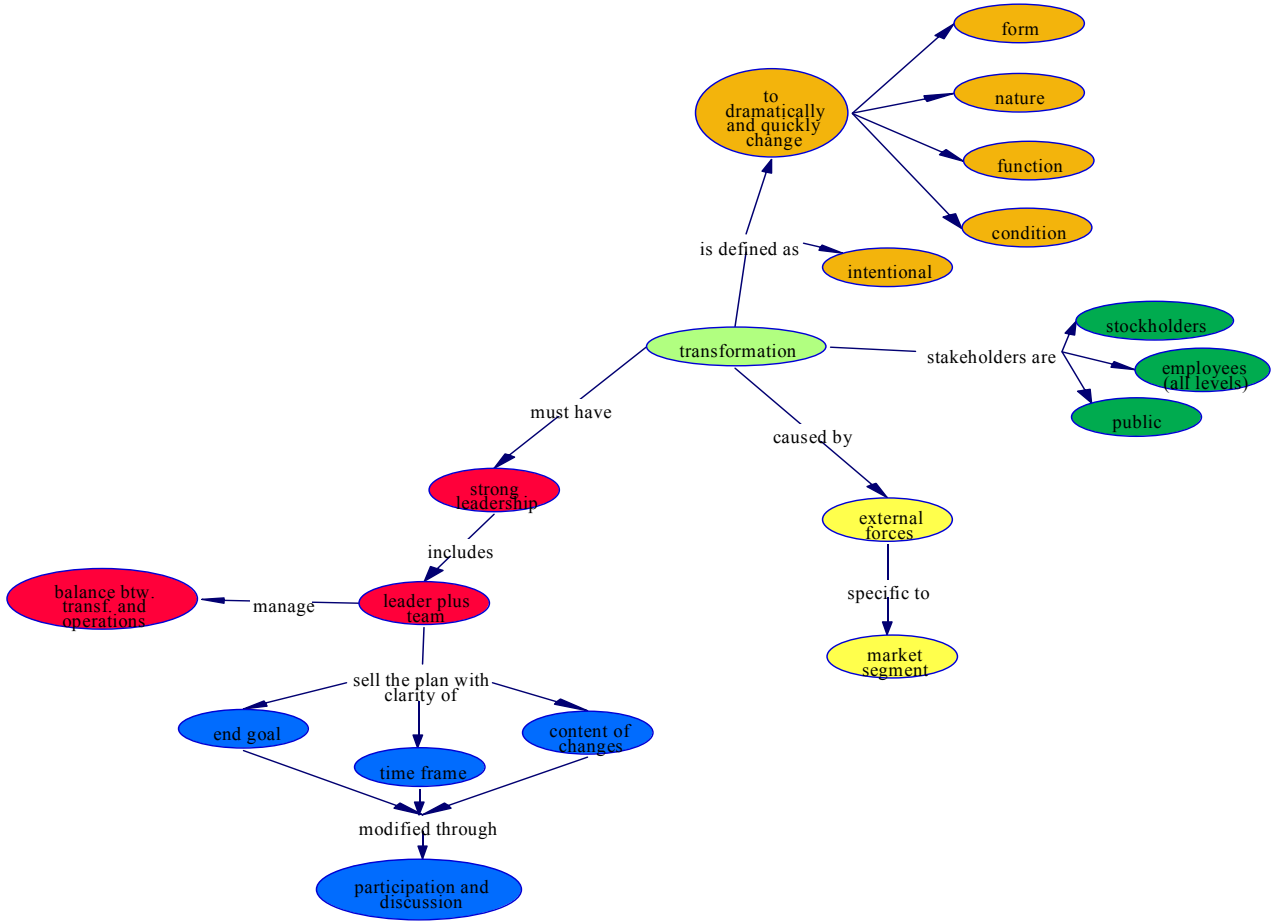
Appendix C.1: Individual Concept Maps
Example 10 – General Transformation Concepts



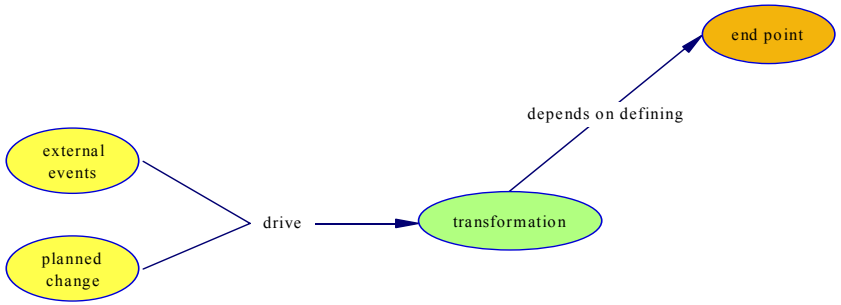
Appendix C.1: Individual Concept Maps
Example 11 – General Transformation Concepts



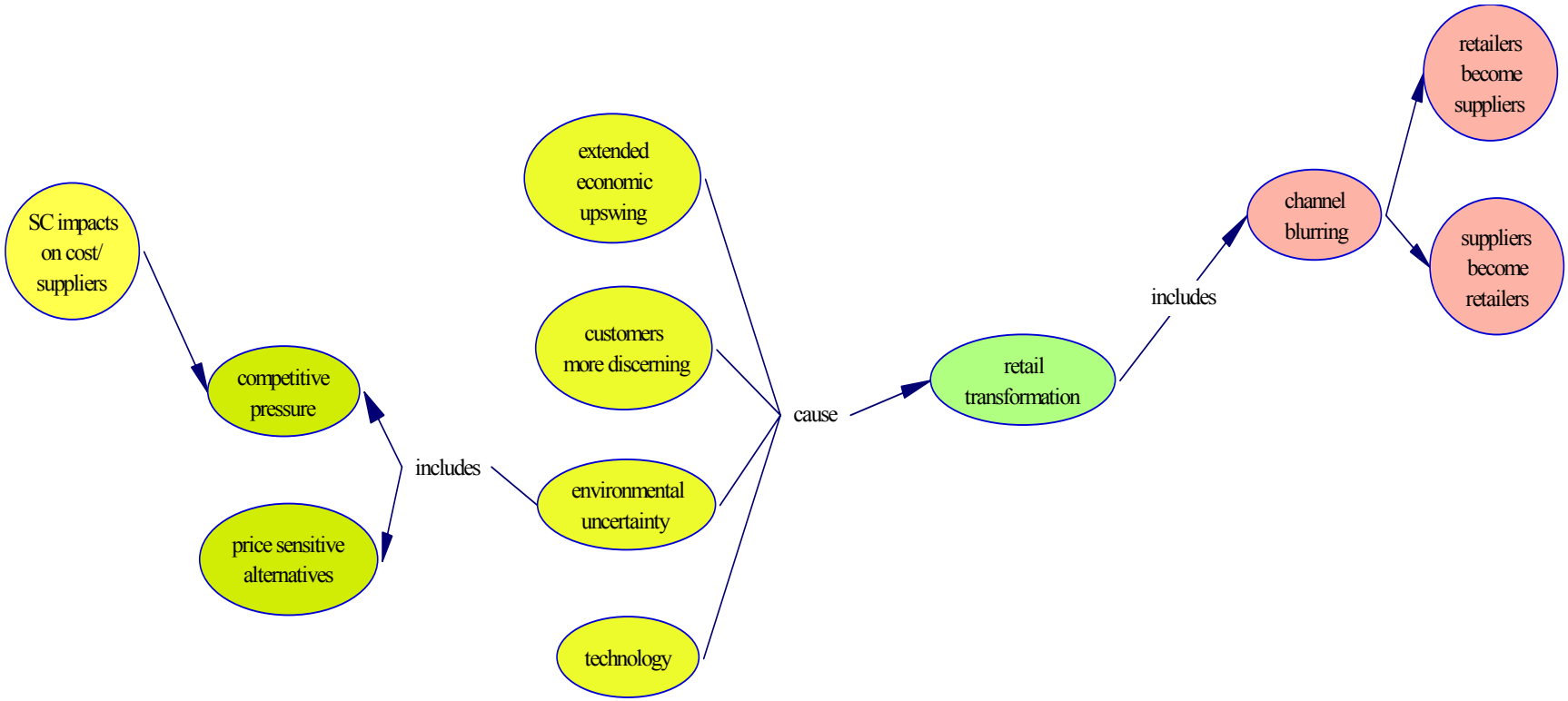
Appendix C.1: Individual Concept Maps
Example 12 – General Transformation Concepts



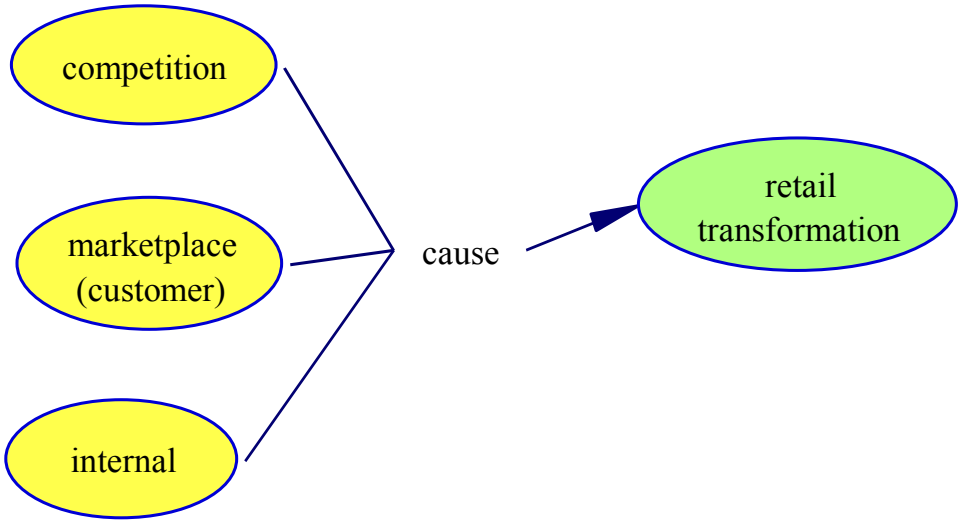
Appendix C.1: Individual Concept Maps
Example 13 – General Transformation Concepts



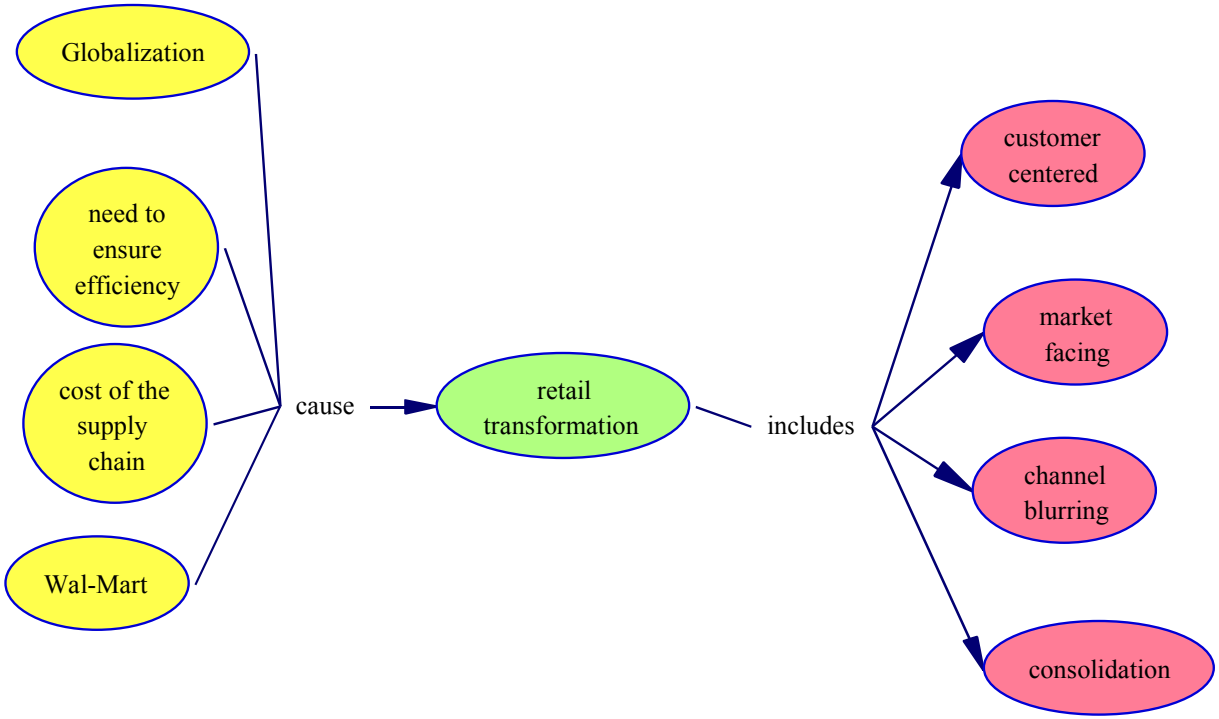
Appendix C.1: Individual Concept Maps
Example 14 – Retail Specific Transformation Concepts



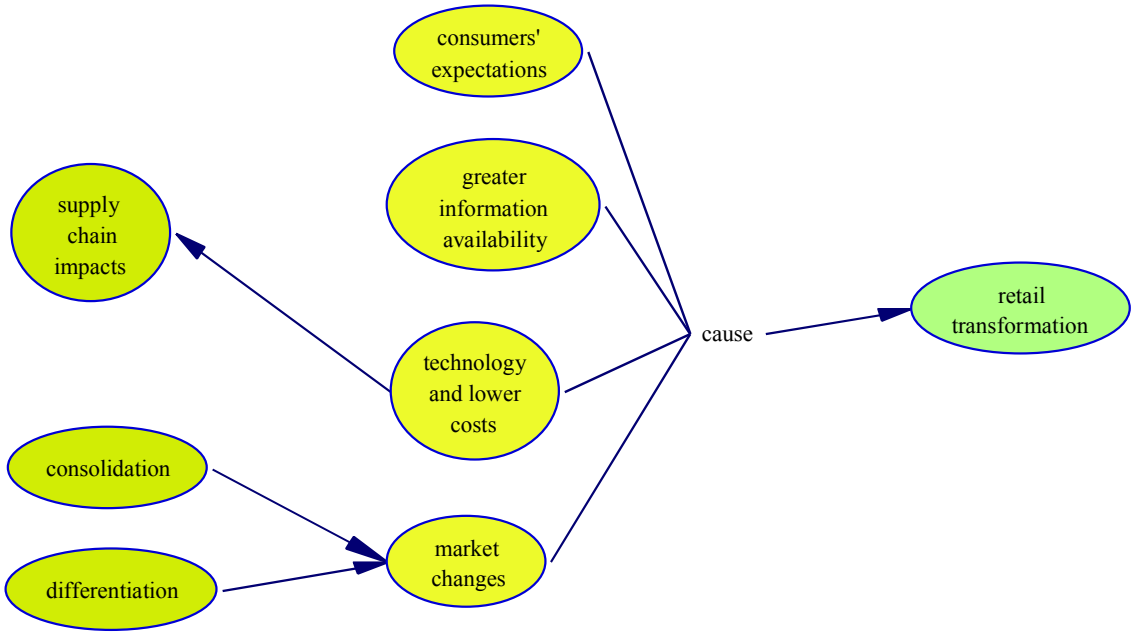
Appendix C.1: Individual Concept Maps
Example 15 – Retail Specific Transformation Concepts



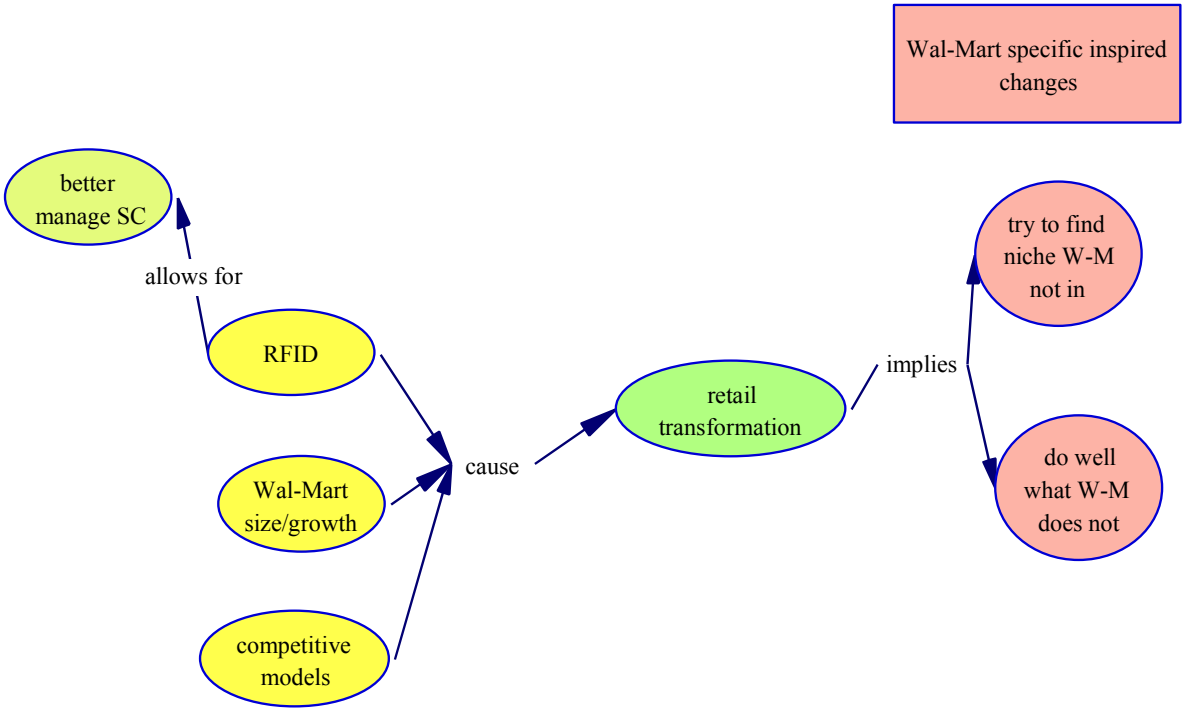
Appendix C.1: Individual Concept Maps
Example 16 – Retail Specific Transformation Concepts



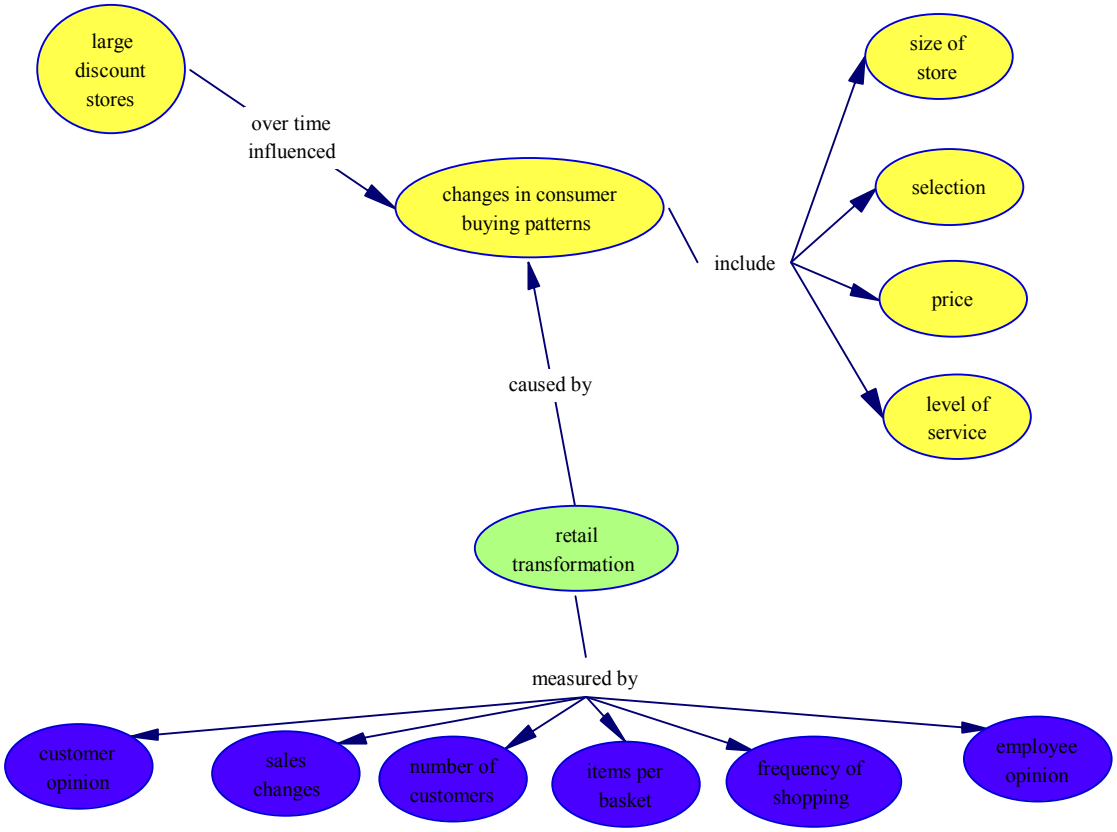
Appendix C.1: Individual Concept Maps
Example 17 – Retail Specific Transformation Concepts



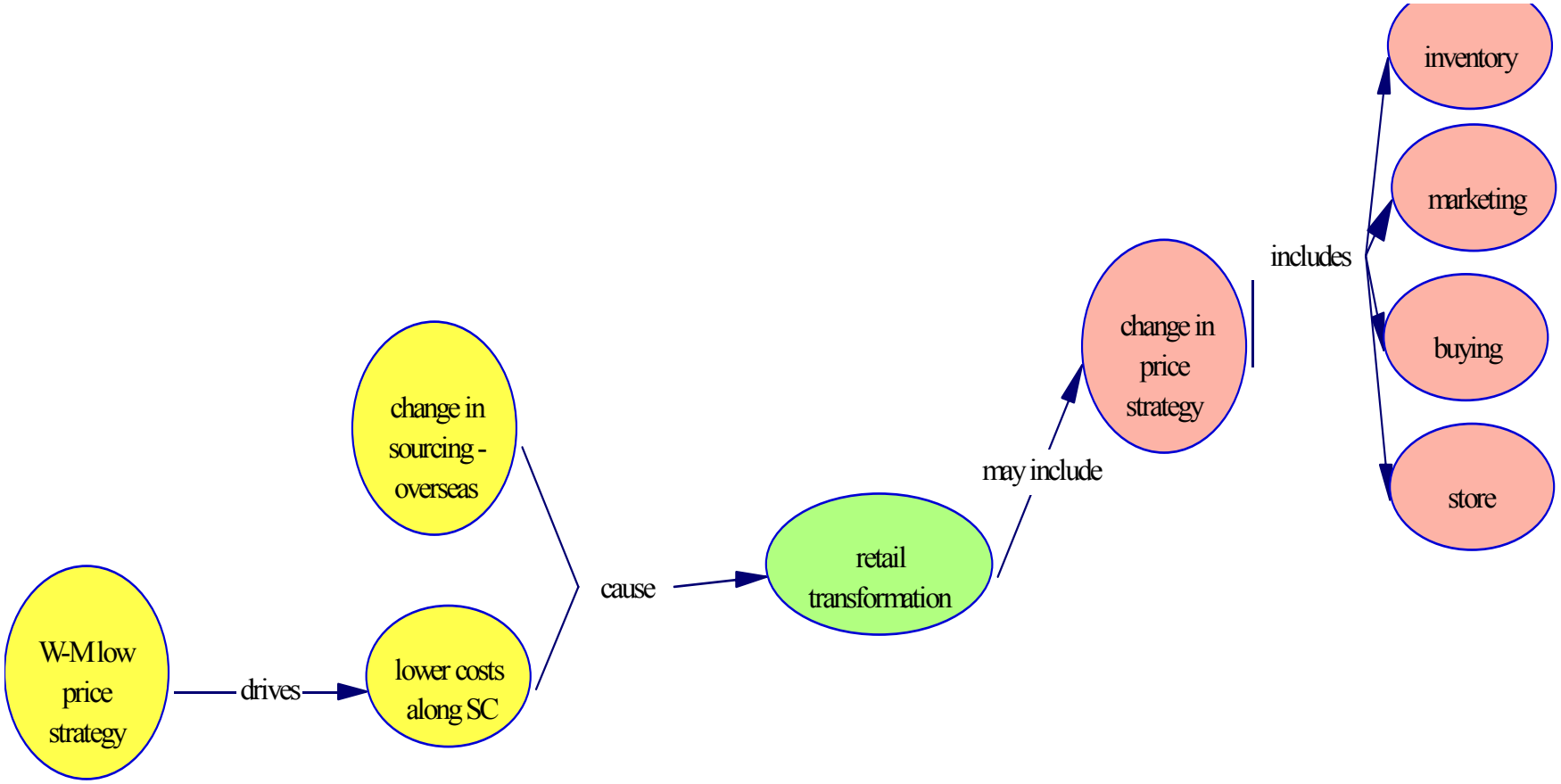
Appendix C.1: Individual Concept Maps
Example 18 – Retail Specific Transformation Concepts



Appendix C.1: Individual Concept Maps
Example 19 – Retail Specific Transformation Concepts



Appendix C.1: Individual Concept Maps
Example 20 – Retail Specific Transformation Concepts



Appendix C.2: Detailed list of word counts from interviews
List of all mentions of different words according to categories

Transformation definitions:

How

- behavioral change (1)
- quick (1)
- intentional (1)
- next stage (1)

What

- reengineering (1)
- reprioritization (1)
- sustainable (1)
- multi-level (1)
- behavioral change (1)
- radical shift (1)
- dramatic (1)
- frame breaking (1)
- new business model (1)
- game changing (1)
- converting systems, culture, operations (1)
- broad and encompassing (1)
- change for the between (1)

Misalignment Forces:

External

- environmental (1)
- external forces (4)
- changes in market (4)
- customer preferences (1)
- lifestyle changes (1)
- competitive threats (4)
- cost drivers (1)
- technology (3)
- regulation (3)
- economic changes (1)

Internal

- changes in strategy (1)
- inability to execute on vision (1)
- crisis (1)
- planned change (1)

Outcomes and Measurements:

Financial

- goals (2)
- financial metrics (2)
- increase shareholder value (1)
- interim goals (1)

Non-financial

- goals (1)
- qualitative metrics (1)
- interim goals (2)
- end state (1)

Internal Process:

Goals, plans, timing

- innovation (1)
- execution (1)
- acquisitions (1)
- proactive (1)
- anticipatory (1)
- consistency (1)
- reward systems (1)
- incentives (1)
- monitoring (1)
- training (1)

Cultural aspects

- proactive (2)
- anticipatory (2)
- discipline and focus (1)

- attitudes (1)
- perception (1)
- repetition (1)
- consistency (1)
- clarity (1)
- simplicity (1)

Leadership considerations:

Vision

- direction (1)
- strategy (1)
- vision (5)
- commitment (1)
- longer term (1)
- expectations (2)

Values

- integrity (1)
- risk taking (1)
- open dialogue (1)
- discussion (1)
- experience (1)
- empower (1)
- team (2)
- enable (1)
- entrust (1)
- communication (3)

Execution

- decisions (1)
- risk taking (1)
- flexibility (1)
- active involvement (1)
- support (2)
- participation (1)
- agenda (1)
- goals and objectives (1)
- resource allocation (1)
- consistency (1)
- repetition (2)
- accountability (2)
- block resistance (1)
- expectations (2)
- entrust (1)
- execution (1)

Numbers of all mentions of each word in ( )
14 interviews used to isolate words in these categories

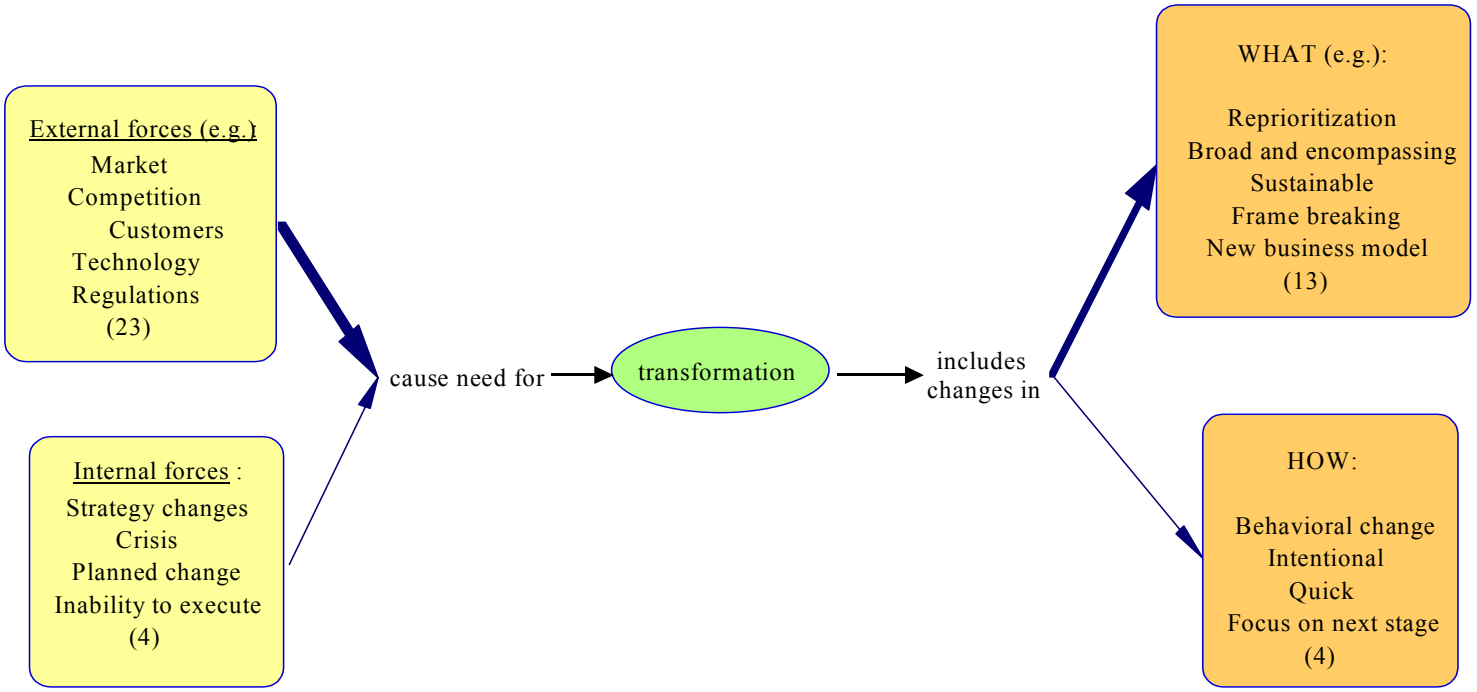
Appendix C.2
Detailed Word Count Tables

Detailed word count table for retail-specific interviews

Forces for change in retail	Count	Effects of changes in retail sector	Count
"Macro" economic conditions	1	Channel blurring	2
Consumer expectations - price and variety	4	Change in price strategy	1
Technology	3	Increased focus on customers	2
Competitive pressure	3	Consolidation	1
Supply chain impacts on costs	5	Differentiation	2
Wal-Mart low price, pressure on supply chain	4		
Globalization	2		
Consolidation	1		
Differentiation	1		
Information availability	1		

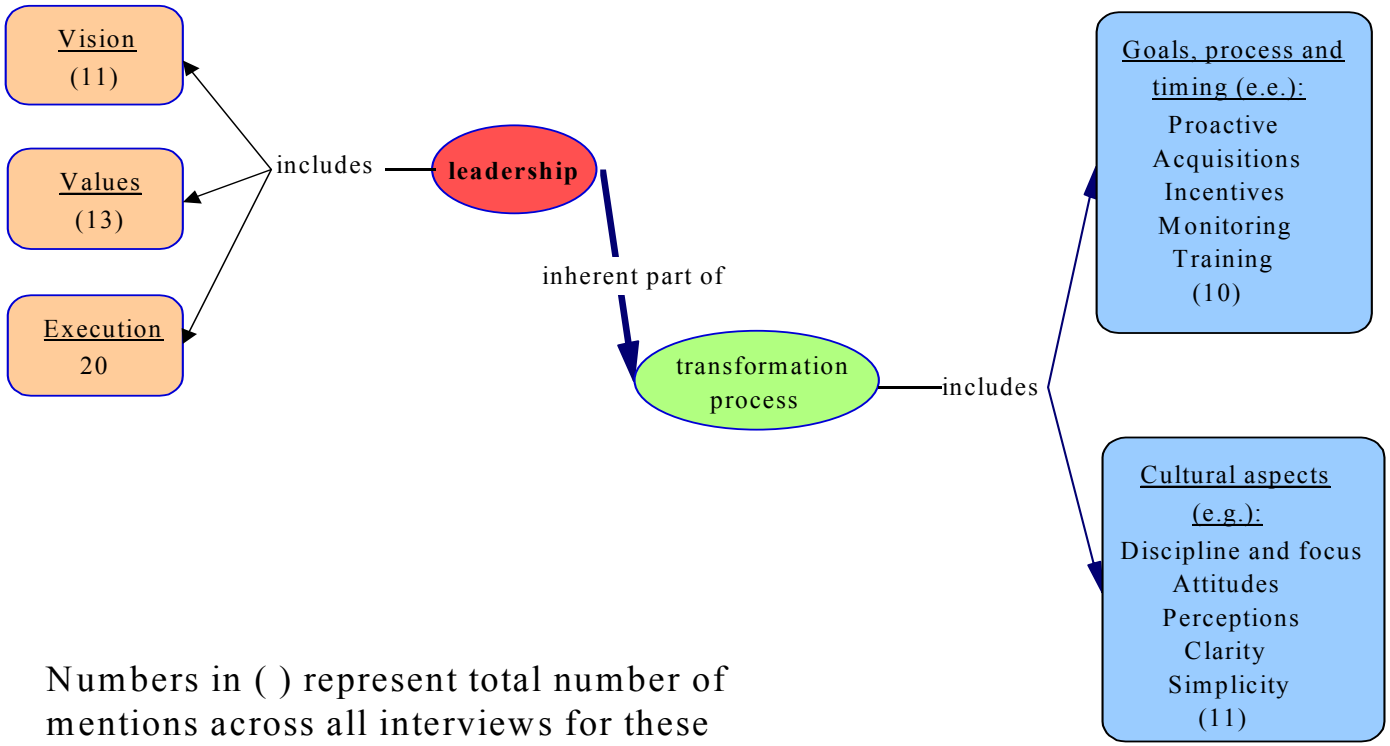
- The counts include all mentions of the words and concepts indicated.
- No individual counts for more than one utterance of a specific word or concept in the table.
- Total number of interviews that included a specific discussion of the retail industry is eight.
- Many of the concepts, though not articulated with the same words, were similar.
- Overall agreement on forces and effects of retail industry transformation is evident with the number of mentions included across all interviews.

Appendix C.3: Aggregated Concept Maps
Example 1 – Forces and Definitions



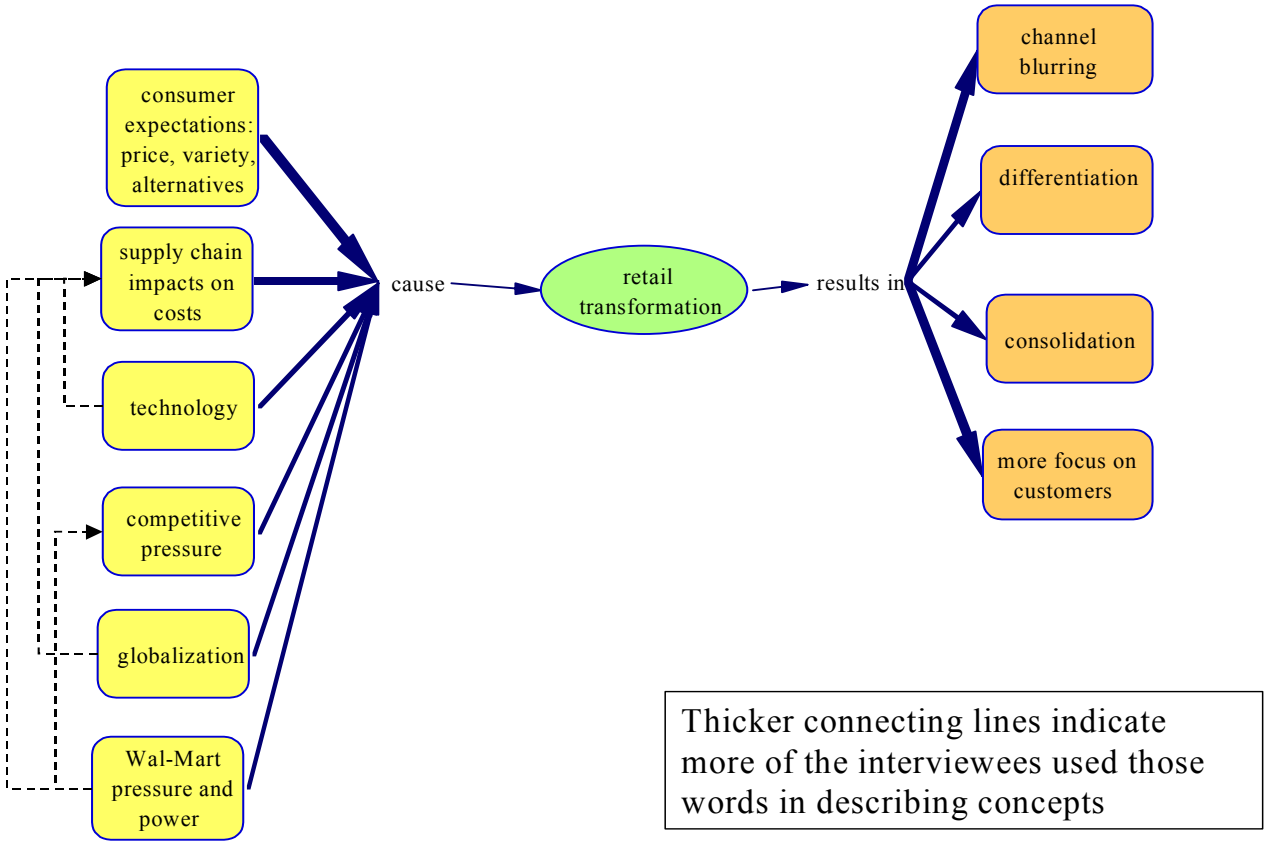
Numbers in ( ) represent total number of mentions across all interviews for these categories. Thicker lines mirror the concentration of numbers.

Appendix C.3: Aggregated Concept Maps
Example 2 – Process Factors



Numbers in ( ) represent total number of mentions across all interviews for these categories.

Appendix C.3: Aggregated Concept Maps
Example 3 – Retail-Specific Interviews



Appendix C.4
Selected quotes from retail executive interviews

Isolating particular quotes and phrases from several of the interviewees provides an additional way to understand the validation of the Model elicited by this process. Below, several quotes from interview participants have been pulled out of the transcripts and categorized according to the different pieces of the Transformation Model to which they relate.

Recognition and initiation of transformation:

"The question is what has to be in place for the opportunity to be seen and secondly what has to be in place for the opportunity to be championed by someone and move forward."

Process factors and enterprise characteristics

"I think there is reluctance, in general to change – a natural resistance. Change never comes easy. It takes something to force it – a new leader, CEO, external factors, technological change, etc. If things are going OK – the common response s "it's going pretty good, why should we change?" "If things aren't broken, no need to fix it"."

"If you have a culture that has the receptiveness to new possibilities, that doesn't care about the idea of who is the champion, or the individual who started the conversation and who may in fact in time, forge that and the person whose idea it was is willing to forget that, and the idea in fact lives out of its own, cultures that are supportive, that are daring, that take risk, cultures that work for the idea that they are trying to experiment, are willing to have failures. That's the kind of culture that moves things forward."

"Transformational change can be very disruptive. Organizations can only absorb so much. You have to be aware of the capacity to change. You have to balance that against what other initiatives you have going on."

Process factors – leadership specific

"I started to implement vision statement, mission statement, and a position statement for the company. I didn't create it, I actually gathered the stuff that they were working on, and gave it some structure, and then implemented it in a way that shoved it down everyone's throat so they could absorb it quickly and they didn't have time to digest it. And then see if they could regurgitate it over and over. If they can repeat it, at least they

have it on their radar. Now the question is can they apply their operating values and concepts."

"First, they have to block the rest of the organization from preventing the change from not being done."

"It is all about encouraging an open dialogue. People need to understand that they won't be punished for telling the truth, and then they will do it. Need to rely on internal users of the change."

"Leadership is all about integrity. It's all about trusting, and listening. You don't have to know everything, you must know the questions."

Process factors in general

"It had to do with the difference in execution and the disciplines in staying with the philosophy."

"Everything you do you does consistently. Think about it as a parent. If the parent is inconsistent, the child gets confused."

Definition and scope of transformation

"It (transformation) is radically rethinking the way you do business from what you have been doing. If you are doing it right, you should always be thinking of incremental, small improvements or changes."

Generalized observations

"I think our turnaround is a result of not so much what we've done positively, but what we stopped doing negatively. The company was turned over to people who managed so far off the mark, so inappropriately, that our perception of retail became hideous."

"First, there is the understanding of what's causing the problems. Second, there is the ability to solve the problems."

Appendix D.1
List of sorting and cleaning steps for survey responses

The steps taken to clean the data in order to analyze them fully according to the Model and the other theoretical arguments presented in this research were as follows.

First, the completed surveys were sorted by sales of company last fiscal year (Question 50). The list provided by the retail trade association included only large, public company employees, and on analysis of Q. 50, it was confirmed that all companies represented by the survey respondents from this list reported sales of over several hundred million dollars. The list procured through the survey company was much more varied, and thus had to be sorted and cleaned according to the size of the company, which was determined using the answer to Q. 50. Several respondents did not divulge the sales of their company last fiscal year, though in a few cases, they did provide the name of their company (Q. 49), thus allowing the researcher to determine if the sales were large enough, if the company was public. The initial, descriptive analysis for the purchased sample list produced the following figures:

- Range of $0 - $10B sales
- At a threshold of $1M sales, total of 47 responses, out of 149 (31.5%)
- At a threshold of $10M sales, total of 28 responses, out of 149 (18.8%)

The next step in cleaning the data was verifying that all respondents did in fact work in the retail industry. This was verified by examining all responses for company name (Question 49) and their response to the question "Please describe the major activities of your company" (Question 51). The retail association list was verifiable to include only retail executives because the individual names, company names, and email addresses of all recipients were included in the original data. The Zoomerang list did not

include this information, as the company sent out the invitations, and the researcher was not able to procure the actual names or email addresses. The credibility of the respondents is important to the validity of their answers to salient questions. Based on this next step in the cleansing of all data, the following figures were determined:

- Of the 47 respondents from Zoomerang who met the $1M sales threshold, 32 (21.5% of the original 149) reported to be in the retail sector.
- Of the 28 respondents from Zoomerang who met the $10M sales threshold, 22 (14.8% of the original 149) reported to be in the retail sector.

Based on these numbers, then, the threshold of $1M was chosen as a criterion from which to select responses to be included in the final analysis.

The next step was combining all the responses from the two lists – 32 from Zoomerang, and 52 from the retail association list. The next question to analyze was number 1: "Have you been a part of a large-scale transformation at this or another company?" Those who answered No to this question were eliminated from the final list of surveys to analyze, as their answers were not relevant to the context of the present study. The figures gleaned from this step of the analysis were the following:

- Four of the 32 Zoomerang respondents answered No, leaving 28
- Eight of the 52 retail association respondents answered No, leaving 44

Appendix D.2
Principal Component Analyses

The tables below, D.2.1-D.2.6, display the results of the principal component analyses for all relevant factors. Short discussion of these results follows the tables.

PCA of goals: Clarity of goals (Q. 11-13)			
Eigenvalue	1.8753	0.8239	0.3008
Proportion	0.625	0.275	0.1
Cumulative	0.625	0.9	1
Variable	**PC1**	**PC2**	**PC3**
Q. 11	0.65	0.252	0.717
Q. 12	-0.411	0.91	0.053
Q. 13	0.639	0.329	-0.695

Table D.2.1: PCA results for clarity of goals factor

PCA of plans: Availability of plans (Q.16, 18, 23)			
Eigenvalue	2.0813	0.7707	0.148
Proportion	0.694	0.257	0.049
Cumulative	0.694	0.951	1
Variable	**PC1**	**PC2**	**PC3**
Q. 16	0.644	-0.284	0.71
Q. 18	0.64	-0.308	-0.704
Q. 23	0.418	0.908	-0.017

Table D.2.2: PCA results for availability of plans factor

PCA of time: Time available (Q.25-28)				
Eigenvalue	2.6615	0.7383	0.4585	0.1417
Proportion	0.665	0.185	0.115	0.035
Cumulative	0.665	0.85	0.965	1
Variable	**PC1**	**PC2**	**PC3**	**PC4**
Q. 25	0.547	-0.417	0.038	-0.725
Q. 26	0.531	-0.498	-0.02	0.686
Q. 27	0.459	0.527	-0.715	0.006
Q. 28	0.456	0.549	0.698	0.065

Table D.2.3: PCA results for time available factor

PCA of Leadership communication (Q. 35 & 39)		
Eigenvalue	1.7571	0.2429
Proportion	0.879	0.121
Cumulative	0.879	1
Variable	**PC1**	**PC2**
Q. 35	0.707	-0.707
Q. 39	0.707	0.707

PCA of Leadership support (Q. 36 & 38)		
Eigenvalue	1.6016	0.3984
Proportion	0.801	0.199
Cumulative	0.801	1
Variable	**PC1**	**PC2**
Q. 36	0.707	-0.707
Q. 38	0.707	0.707

Tables D.2.4 & D.2.5: PCA results for leadership factors

PCA of success: Desirability of outcomes (Q. 46-48)			
Eigenvalue	2.4219	0.3416	0.2365
Proportion	0.807	0.114	0.079
Cumulative	0.807	0.921	1
Variable	**PC1**	**PC2**	**PC3**
Q. 46	0.572	-0.67	-0.472
Q. 47	0.568	0.739	-0.361
Q. 48	0.591	-0.062	0.804

Table D.2.6: PCA results for transformation success factor

We can see from all the above tables that the factor analyses performed here provide strong results for all tests. The eigenvalues on all principal components measured are well above 1.0 (the Kaiser criterion, commonly used as a test for how many factors to retain out of an analysis) (StatSoft, 2005). Furthermore, all PCAs performed show a high explanatory value for the first component (all greater than .6). Thus, we are confident in using these coefficients to derive linear combinations of the questions in order to measure one factor. The coefficients presented by the analyses here were then used to create transformed factors, according to the question answers and the appropriate combinations.

Appendix D.3
Results from exploratory and descriptive survey questions

Several questions in the survey were not intended to capture the measurable variables used to test the hypotheses. Rather, these questions provide a contextual background for the statistical analyses presented in Chapter 6. Following are their results.

- How long did the transformation process take?

choices	count	% of total
< 1 year	13	18.1%
1 - 2 years	33	45.8%
2 - 3 years	18	25.0%
> 3 years	8	11.1%
	72	100%

Table D.3.1

- Was the inception of transformation delineated (clear decision) or emergent over time?

choices	count	% of total
decision	40	55.6%
emergent	32	44.4%
	72	100%

Table D.3.2

- Did you believe the transformation was necessary?

choices	Count	% of total
yes	66	91.7%
no	6	8.3%
	72	100%

Table D.3.3

- How often throughout the transformation process was the vision communicated and/or repeated?

choices	count	% of total
never	3	4.2%
rarely	9	12.5%
sometimes	18	25.0%
often	26	36.1%
consistently	16	22.2%
	72	100%

Table D.3.4

- Do you think the changes were in line with the overall direction the company should take?

choices	count	% of total
0-20%	5	6.9%
21-40%	7	9.7%
41-60%	6	8.3%
61-80%	19	26.4%
81-100%	35	48.6%
…of the time	72	100%

Table D.3.5

- What is your overall assessment of the leadership during this process (transformation)?

choices	count	% of total
very negative	5	6.9%
negative	9	12.5%
neutral	13	18.1%
positive	26	36.1%
very positive	19	26.4%
	72	100%

Table D.3.6

We can also review the frequency statistics for the two questions used for the internal reliability measure (Q. 17 and Q. 24). These questions asked about the frequency of multiple stages or phases being designed into the overall transformation process. As

discussed in Chapters 5 and 6bove, the statistics on these questions provide internal validity support.

- Question 17: Was the overall process designed to have different stages or parts over a longer period of time?
- Question 24: Were there multiple stages set forth during the process?

Question 17		
choices	count	% of total
0-20%	8	11.1%
21-40%	9	12.5%
41-60%	12	16.7%
61-80%	16	22.2%
81-100%	27	37.5%
…of the time	72	100%

Question 24		
choices	count	% of total
0-20%	4	5.6%
21-40%	9	12.5%
41-60%	14	19.4%
61-80%	19	26.4%
81-100%	26	36.1%
…of the time	72	100%

Tables D.3.7 & D.3.8

Appendix D.4
Full Regression Models

As a first step in performing the hypotheses tests and specification of regression models, fully-specified models were tested for all three dependent variables. The results follow. Subsequent analyses, based on more parsimonious models were conducted and the results and discussions are in Chapter 6, as well as in subsequent sections of this Appendix.

Explanatory Variable	B	Std. Error	Beta	t	Sig.
(Constant)	1.277	.686		1.862	.068
Time Available	-5.477E-02	.086	-.091	-.633	.529
Clarity of Goals	.316	.139	.422	2.268	.027
Number of Goals	-8.038E-02	.123	-.067	-.656	.514
Availability of Plans	-7.560E-02	.128	-.111	-.591	.557
Clarity of Plans	.118	.164	.127	.721	.474
Flexibility of Plans	1.457E-03	.113	.002	.013	.990
Clarity of Vision	-5.530E-02	.130	-.063	-.427	.671
Leadership Communication	-5.584E-02	.156	-.071	-.359	.721
Leadership Support	.465	.162	.507	2.867	.006

Table D.4.1: Full Regression Model 1
For the DV = outcomes realized

Explanatory Variable	B	Std. Error	Beta	t	Sig.
(Constant)	3.347	.947		3.535	.001
Time Available	.106	.119	.158	.885	.380
Clarity of Goals	-.399	.192	-.477	-2.078	.042
Number of Goals	1.009E-02	.169	.008	.060	.953
Availability of Plans	.108	.177	.141	.609	.545
Clarity of Plans	-.100	.226	-.097	-.443	.659
Flexibility of Plans	-.172	.156	-.164	-1.105	.274
Clarity of Vision	-9.795E-02	.179	-.100	-.548	.586
Leadership Communication	4.207E-02	.215	.048	.196	.845
Leadership Support	2.068E-02	.224	.020	.092	.927

Table D.4.2: Full Regression Model 2
For the DV = perceptual rating of success

Explanatory Variable	B	Std. Error	Beta	t	Sig.
(Constant)	6.725	.582		11.564	.000
Time Available	-3.611E-02	.073	-.060	-.492	.624
Clarity of Goals	-.221	.118	-.295	-1.870	.067
Number of Goals	-3.096E-02	.104	-.026	-.298	.767
Availability of Plans	.114	.108	.168	1.054	.296
Clarity of Plans	-.214	.139	-.231	-1.540	.129
Flexibility of Plans	-.118	.096	-.126	-1.234	.222
Clarity of Vision	-5.087E-02	.110	-.058	-.463	.645
Leadership Communication	.182	.132	.230	1.375	.174
Leadership Support	-.492	.138	-.536	-3.575	.001

Table D.4.3: Full Regression Model 3
For the DV = desirability of realized outcomes

Appendix D.5
First testing of hierarchical regression for each dependent variable

Model 1: Outcomes Realized

For the test of the hypotheses with the dependent variables as "outcomes realized", two different models were tested with certain explanatory variables entered in various steps for each different model. The first analysis included three steps in a hierarchical regression. The variables in each block were as follows:

1. Clarity of goals
2. + Clarity of plans, and Flexibility of plans
3. + Leadership support

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change
1	.597	.356	.346	1.0320	**.356**
2	.609	.371	.341	1.0359	**.015**
3	.675	.455	.421	.9714	**.085**

Model 1 predictors: Clarity of goals
Model 2 predictors: Clarity of goals, Clarity of plans, and Flexibility of plans
Model 3 predictors: Clarity of goals, Clarity of plans, Flexibility of plans, and Leadership Support

Coefficients

Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.150	.291		7.378	.000
	Clarity of goals	.446	.073	.597	6.086	.000
2	(Constant)	1.877	.368		5.107	.000
	Clarity of goals	.382	.105	.512	3.634	.001
	Flexibility of plans	9.643E-02	.105	.103	.923	.360
	Clarity of plans	6.243E-02	.138	.067	.451	.653
3	(Constant)	.764	.493		1.549	.126
	Clarity of goals	.217	.112	.290	1.940	.057
	Flexibility of plans	-1.680E-02	.104	-.018	-.161	.873
	Clarity of plans	4.606E-02	.130	.050	.355	.724
	Leadership support	.383	.122	.419	3.150	.002

Based on this first analysis, another hierarchical regression analysis was conducted with less independent variables. That model is included in chapter 6 and presents the final results for Model 1.

Model 2: Perceptual Rating of Success

The more parsimonious analysis for this dependent variable was again driven by the original analysis that had included all the explanatory variables. The first analysis included four steps, with the following variables in each:

1. Time available
2. + Clarity of goals
3. + Flexibility of plans, and Availability of plans
4. + Clarity of vision

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change
1	.219	.048	.034	1.3917	.048
2	.407	.165	.140	1.3128	.117
3	.440	.193	.144	1.3102	.028
4	.443	.196	.133	1.3181	.003

Model 1 predictors: Time available
Model 2 predictors: Time available and Clarity of goals
Model 3 predictors: Time available, Clarity of goals, Clarity of plans, Flexibility of plans, and Availability of plans
Model 4 predictors: Time available, Clarity of goals, Clarity of plans, Flexibility of plans, Availability of plans, and Clarity of vision

Coefficients

Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.317	.537		6.177	.000
	Time available	-.145	.078	-.219	-1.852	.068
2	(Constant)	3.257	.507		6.424	.000
	Time available	9.350E-02	.107	.141	.872	.386
	Clarity of goals	-.415	.135	-.497	-3.069	.003
3	(Constant)	3.499	.633		5.532	.000
	Time available	9.392E-02	.108	.142	.870	.388
	Clarity of goals	-.406	.170	-.486	-2.392	.020
	Flexibility of plans	-.188	.126	-.184	-1.500	.138
	Availability of plans	5.593E-02	.138	.074	.405	.687
4	(Constant)	3.533	.640		5.516	.000
	Time available	9.879E-02	.109	.149	.905	.369
	Clarity of goals	-.396	.172	-.475	-2.304	.024
	Flexibility of plans	-.176	.129	-.172	-1.363	.178
	Availability of plans	7.084E-02	.142	.093	.497	.621
	Clarity of vision	-6.435E-02	.138	-.067	-.467	.642

This first hierarchical regression analysis produced a number of variables that were not significant in explaining the variance in the dependent variable. The final model, used to provide supporting evidence for significant factors is included in chapter 6.

Model 3: Desirability of Realized Outcomes

The last dependent variable to be tested with a parsimonious hierarchical regression analysis was desirability of realized outcomes. This dependent variable was measured with three different questions and the final factor was a linear combination of responses on all three questions, based on our principal component analysis. Two analyses were conducted here. The first analysis consisted of four steps, including the following variables in each:

1. Time available
2. + Clarity of goals
3. + Clarity of plans, and Flexibility of plans
4. + Leadership support, and Leadership communication

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change
1	.574	.330	.320	1.0534	.330
2	.681	.463	.447	.9499	.133
3	.726	.527	.497	.9059	.063
4	.784	.615	.578	.8295	.089

Model 1 predictors: Time available
Model 2 predictors: Time available, and Clarity of goals
Model 3 predictors: Time available, Clarity of goals, Clarity of plans, and Flexibility of plans
Model 4 predictors: Time available, Clarity of goals, Clarity of plans, Flexibility of plans, Leadership support, and Leadership communication

Coefficients

Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.419	.406		13.346	.000
	Time available	-.344	.060	-.574	-5.743	.000
2	(Constant)	5.390	.366		14.715	.000
	Time available	-.122	.077	-.204	-1.589	.117
	Clarity of goals	-.389	.096	-.520	-4.048	.000
3	(Constant)	5.889	.391		15.056	.000
	Time available	-9.941E-02	.075	-.166	-1.326	.190
	Clarity of goals	-.277	.106	-.371	-2.610	.011
	Clarity of plans	-.128	.124	-.138	-1.037	.303
	Flexibility of plans	-.204	.091	-.218	-2.232	.029
4	(Constant)	6.820	.445		15.335	.000
	Time available	-3.892E-02	.070	-.065	-.552	.583
	Clarity of goals	-.180	.105	-.241	-1.717	.091
	Clarity of plans	-.151	.114	-.163	-1.326	.190
	Flexibility of plans	-.130	.093	-.139	-1.394	.168
	Leadership communication	.175	.116	.221	1.506	.137
	Leadership support	-.490	.133	-.535	-3.680	.000

Based on this first hierarchical regression analysis, another model was run with less explanatory variables included. The final results of the analysis are included in Chapter 6.

Appendix D.6
Forward selection regression analyses

As noted in Chapter 6, forward selection regression techniques were used to test the hypotheses for al three dependent variables. Below are the results and short descriptions of findings for each of the models.

Model 1: Outcomes Realized

Step	**1**	**2**
Constant	0.5717	0.831
Leadership support	0.576	0.367
T-Value	6.54	3.21
P-Value	0.000	0.002
Clarity of goals		0.251
T-Value		2.69
P-Value		0.009
R-Sq	39.32	45.39
R-Sq(adj)	38.4	43.71
Mallows C-p	3	-1.7

We can see here that the final choice of variables for the model, and the coefficients, p-values and full model R-squared values are all extremely similar to the values from the final hierarchical regression for this same dependent variable. The slight differences in coefficients and p-values from this technique and the hierarchical technique are due to the choice of variables and the order in which they are entered in the two different analyses. In addition, because the final hierarchical model also included the clarity of vision variable, though it was found not to be significant, the coefficients and p-values differ slightly due to the influence of this additional predictor. The final choices of significant variables that help explain the variance of the dependent variable, outcomes realized, are clarity of goals, and leadership support.

The software used to perform this analysis also returns a value for the Mallows Cp statistic. This figure represents a calculation of the bias or fit of the regression model under consideration. The most common way of interpreting and using the Mallows Cp value is to choose the model that most closely fits with the criterion that the Mallows Cp is approximately equal to the number of explanatory variables in the model (Stevens, 1996). Clearly, in this case, the Mallows Cp is not equivalent to the number of variables entered in the forward selection regression. However, some software programs that calculate and use Mallows Cp for model selection, do not do so when less than three explanatory variables have been entered (NIST, 2003).

Model 2: Perceptual Rating of Overall Success

Step	**1**	**2**
Constant	3.561	3.937
Clarity of goals	-0.329	-0.277
T-Value	-3.48	-2.74
P-Value	0.001	0.008
Flexibility of plans		-0.18
T-Value		-1.4
P-Value		0.166
R-Sq	15.47	17.95
R-Sq(ad)	14.19	15.43
Mallows C-p	-2.7	-2.5

For this dependent variable, we also have findings very similar to the previously conducted hierarchical regression. The final analysis reveals that the most significant variables in this case are clarity of goals and flexibility of plans, in both cases. Again the slight differences in coefficients and p-values are most likely due to the entering of variables in different order for the two techniques. As mentioned above, the negative

coefficient values are a result of the reverse coding of the outcome scale. The higher numbers in the outcomes responses indicate more negative overall perception of transformation success, whereas the higher numbers for the explanatory variables indicate greater levels of the variable under study. In this model, we also have to consider the Mallow's Cp statistic included in these results. As with Model 1, the value is not equivalent to the number of explanatory variables, though there is some question as to the relevance of this statistic in the case where there are less than three explanatory variables included in the model.

Model 3: Desirability of Realized Outcomes

Step	**1**	**2**	**3**
Constant	6.815	6.537	6.655
Leadership support	-0.654	-0.43	-0.412
T-Value	-8.23	-4.26	-4.1
P-Value	0	0	0
Clarity of goals		-0.268	-0.179
T-Value		-3.27	-1.79
P-Value		0.002	0.078
Clarity of plans			-0.17
T-Value			-1.55
P-Value			0.126
R-Sq	50.62	57.58	59.11
R-Sq(ad)	49.87	56.27	57.19
Mallows C-p	11.8	3.1	2.7

For this last model, we have some larger differences with the hierarchical analysis performed previously. As we saw with that analysis, the same three variables chosen here were also found to have similar coefficients and p-values (leadership support, clarity of goals, and clarity of plans). However, we also found with the hierarchical analysis that

there were two other variables – flexibility of plans and leadership communication – that were shown to have marginal significance (similar to the level of clarity of plans in both hierarchical and forward selection models). Furthermore, the hierarchical analyses showed a greater significance for the clarity of goals variable than this forward selection model shows. The forward selection model shows greater significance for the clarity of plans variable. Of importance in this analysis is that the dependent variable, desirability of outcomes, is actually measured on a three-point scale, with reverse rating. So, a "one" level is the most desirable outcome, and a "three" is the least. This provides a clear reason for the negative coefficients of the significant variables. As the level of leadership support, clarity of goals, and clarity of plans increases, the desirability of the overall transformation outcome also increases. In this model, the Mallows Cp value (2.7) is the closest to the number of explanatory variables. This provides additional support for the fit of the model and its power in explaining the variance in the dependent variable.

The differences in variable selection and significance findings can be explained by the order in which the variables were entered. Additional hierarchical analyses were preformed to see if a different order of variables entered in blocks (steps) would change the findings. We find that if we enter only the three most significant variables for a hierarchical analysis, we get similar results to that of the forward selection method.

REFERENCES

About.com; Retail industry profile; http://retailindustry.about.com. Accessed January 2006.

Amis, J., Slack, T., & Hinings, C. R. 2004. The pace, sequence and linearity of radical change. Academy of Management Journal, 47(1): 15-39.

Anonymous. 2003a. Inventory management 2003: An overview, Chain Store Age, Vol. 79.

Anonymous. 2003b. Channel grazers drive continued channel blurring, according to new ACNielsen report, Retail Merchandiser, Vol. 43.

Argyris, C. 1976. Single-loop and Double-loop models in research on decision making. Administrative Science Quarterly, 21: 363-375.

Arndt, M. 2006. Danger: Falling prices, BusinessWeek, Vol. January 30.

Association, N.; NAICS Information; www.naics.com/info.htm. Accessed November 2005

Bainbridge, L. 1997. The change in concepts needed to account for human behavior in complex dynamic tasks. IEEE Transactions on Systems, Man and Cybernetics - Part A: Systems and Humans, 27(3): 351-359.

Barbaro, M. 2006. Wal-Mart tries to find its customer, The New York Times. New York.

Barki, H. & Pinsonneault, A. 2005. A model of organizational integration, implementation effort, and performance. Organization Science, 16(2): 165-179.

Barney, J. B. 1986. Strategic factor markets: Expectations, luck, and business strategy. Management Science, 32: 1231-1241.

Bartunek, J. M. & Franzak, F. J. 1988. The effects of organizational restructuring on frames of reference and cooperation. Journal of Management, 14: 579-592.

Beer, M., Eisenstat, R., & Spector, B. 1990. Why Change Programs Don't Produce Change. Harvard Business Review, November-December: 158-166.

Beer, M. & Nohria, N. 2000. Cracking the Code of Change. Harvard Business Review(May-June): 133-141.

Bitan, Y., Meyer, J., Shinar, D., & Zmora, E. 2000. Staff actions and alarms in a neonatal intensive care unit. Paper presented at the IEA 2000/HFES 2000 Congress, San Diego, CA.

Blumenthal, B. & Haspeslagh, P. 1994. Toward a definition of corporate transformation. Sloan Management Review, 35(3).

Boeker, W. 1997. Strategic change: The influences of managerial characteristics and organizational growth. Academy of Management Journal, 40(1): 152-170.

Boeker, W. 1997. Strategic change: The influences of managerial characteristics and organizational growth. Academy of Management Journal, 40(1): 152-170.

Brown, S. L. & Eisenhardt, K. M. 1997. The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. Administrative Quarterly, 42: 1-34.

Brown, S. L. & Eisenhardt, K. M. 1998. Competing on the Edge: Strategy as Structured Chaos. Boston: Harvard Business School Press

Browne, A. 2006. As congress blusters about trade with China, US companies play coy over profits, Wall Street Journal. New York.

Burgelman, R. A. 1996. A process model of strategic business exit: Implications for an evolutionary perspective on strategy. Strategic Management Review, 17(Summer): 193-214.

Camic, P. M., Rhodes, J. R., & Yardley, L. 2003. Qualitative research in psychology: Expanding perspectives in methodology and design. Washington, DC: American Psychological Association.

Carley, K. M. 1997. Organizational adaptation. Annals of Operations Research, 75: 25-47.

Carley, K. M., Prietula, M. J., & Lin, Z. 1998. Design versus cognition: The interaction of agent cognition and organizational design on organizational performance. Journal of Artificial Societies and Social Simulation, 1(3).

Carley, K. M. & Hill, V. 1999. An Approach to identifying consensus in a subfield: The case of organizational culture. Poetics, 27: 1-30.

Christensen, C. M. 1997. The Innovator's Dilemma: When new technologies cause great firms to fail. Boston, MA: Harvard Business School Press.

Coffey, J. W., Hoffman, R. R., Canas, A. J., & Ford, K. M. 2002. A concept map-based knowledge modeling approach to expert knowledge sharing. Paper presented at the IKS 2002: The IASTED International Conference on Information and Knowledge Sharing, 2002.

Cohen, C. R. 2004. Burning Issues for CEOs, Chain Store Age, Vol. 80.

Cohen, M. D., March, J. G., & Olsen, J. P. 1972. A Garbage Can Model of Organizational Choice. Administrative Science Quarterly, 17: 1-25.

Creswell, J. W. 2003. Research design: Qualitative, quantitative, and mixed methods approaches. Thousand Oaks, CA: Sage.

Cummings, T. G. & Worley, C. G. 2001. Organizational Development and Change (7th ed.). Ohio: South-Western College Publishing.

Cyert, R. M. & March, J. G. 1963. A Behavioral Theory of the Firm. Englewood Cliffs, NJ: Prentice-Hall.

Dabierre, D. 2005. Dominie Garcia interview with David Dabierre, SVP Manhattan Associates. Atlanta, GA.

Dacin, M. T., Goodstein, J., & Scott, W. R. 2002. Institutional theory and institutional change: Introduction to the special research forum. Academy of Management Journal, 45: 45-57.

Davis, A. S., Maranville, S. J., & Obloj, K. 1997. The paradoxical process of organizational transformation. In W. A. Pasmore & R. W. Woodman (Eds.), Research in Organizational Change and Development, Vol. 10. Greenwich, CT: JAI Press.

Davis, G. F. & Marquis, C. 2005. Prospects for organization theory in the early twenty-first century: Institutional fields and mechanisms. Organization Science, 16(4): 332-343.

Davis, J. 2004. Dominie Garcia, Interview with Jean Davis, Head of Technology, e-commerce and Operations, Wachovia. Atlanta, GA & Charlotte, NC.

Denis, J.-L., Lamothe, L., & Langley, A. 2001. The dynamics of collective leadership and strategic change in pluralistic organizations. Academy of Management Journal, 44: 809-837.

D'Onofrio, T. 2005. Dominie Garcia interview with Tony D'Onofrio, Chief Supply Chain Officer, Linens and Things. Atlanta, GA.

Elliston, M. 2003. Consumers decry shopping blur, Retail Merchandiser, Vol. 43.

Feigh, K. M., Pritchett, A. R., Jacko, J. A., & Denq, T. 2005. Contextual control modes during an airline rescheduling task. Submitted to the Journal of Cognitive Engineering and Decision Making.

Fink, A. 1995a. The Survey Handbook. Thousand Oaks, CA: Sage.

Fink, A. 1995b. How to ask survey questions. Thousand Oaks, CA: Sage.

Fireman, P. 2005. Dominie Garcia interview with Paul Fireman, CEO & President, Reebok International. Atlanta, GA.

Fishman, C. 2006. The Wal-Mart Effect. New York: Penguin Press.

Frey, J. H. & Oishi, S. M. 1995. How to conduct interviews by telephone and in person. Thousand Oaks, CA: Sage.

Garcia, D. 2005 & Perdue, D. 2006. The transformation of Reebok. In W. B. Rouse (Ed.), Enterprise Transformation: Understanding and Enabling Fundamental Change: Wiley & Sons.

Garrison, B. 2005. Dominie Garcia Interview with Bob Garrison, Vice President, Operations, UPS Supply Chain Solutions. Atlanta, GA.

Gersick, C. J. G. 1991. Revolutionary change theories: A Multilevel exploration of the punctuated equilibrium paradigm. Academy of Management Review, 16: 10-36.

Gersick, C. J. G. 1994. Pacing strategic change: The case of a new venture. Academy of Management Journal, 37: 9-45.

Godfrey & Hill. 1995. The problem of unobservables in strategic management research. Strategic Management Journal, 16: 519-533.

Gordman, R. 2003. No Secret to Success, Chain Store Age, Vol. 79.

Gordon, J. L. 2000. Creating knowledge maps by exploiting dependent relationships. Knowledge-Based Systems, 13: 71-79.

Gould, S. J. 1989. Wonderful Life: The Burgess Shale and the Nature of History. New York, NY: W.W. Norton & Co.

Greenwood, R. & Hinings, C. R. 1987. Editorial introduction: Organizational transformations. Journal of Management Studies, 24: 561-564.

Greenwood, R. & Hinings, C. R. 1993. Understanding Strategic change: The contribution of archetypes. Academy of Management Journal, 36(5): 1052-1081.

Greiner, L. E. 1972. Evolution and revolution as organizations grow. Harvard Business Review(July-August): 37-46.

Hannan, M. T. & Freeman, J. 1977. The population ecology of organizations. American Journal of Sociology, 82: 929-964.

Hannan, M. T. & Freeman, J. 1984. Structural inertia and organizational change. American Sociological Review, 49: 149-164.

Hannan, M. T. & Freeman, J. 1984. Structural inertia and organizational change. American Sociological Review, 49: 149-164.

Hiebert, M. 2006. China's trade surplus tripled, topping $100 Billion last year, Wall Street Journal. New York.

Hill, C. W. L. & Rothaermel, F. T. 2003a. The performance of incumbent firms in the face of radical technological innovation. Academy of Management Review, 28(2): 257-274.

Hinings, C. R. & Greenwood, R. 1988. The dynamics of strategic change. New York: Blackwell.

Hoffman, R. R., Shadbolt, N. R., Burton, A. M., & Klein, G. 1995. Eliciting knowledge from experts: A methodological analysis. Organizational Behavior and Human Decision Processes, 62(2): 129-158.

Hollnagel, E. 1993. Human reliability analysis: Context and control. London: Academic Press.

Hoover's; Financial Services Industry Profile.

Hoovers; Retail Industry; www.hoovers.com/retail. Accessed July 2005.

House, R., Rousseau, D. M., & Thomas-Hunt, M. 1995. The meso paradigm: A framework for the integration of micro and macro organizational behavior. Research in Organizational Behavior, 17: 71-114.

Hrebiniak, L. G. & Joyce, W. F. 1985. Organizational adaptation: Strategic choice and environmental determinism. Administrative Science Quarterly, 30: 336-349.

Hutchins, E. 1991. The Social Organization of Distributed Cognition. In L. B. Resnick & J. M. Levine & S. D. Teasley (Eds.), Perspectives on Socially Shared Cognition. Washington, DC: American Psychological Association.

Huy, Q. N. 2001. Time, temporal capability, and planned change. Academy of Management Journal, 26(4): 601-623.

Insight, G. 2004. US Industry Quarterly Review: Retail and Wholesale Trade - General Merchandise.

Jacobson, R. 1992. The "Austrian" school of strategy. Academy of Management Review, 17: 782-807.

Javaux, D. & Polson, P. G. 1999. A method for predicting errors when interacting with finite state machines: The impact of implicit learning on the user's model of the system. Pre-proceedings of Human Error, Safety, and System Development (HESSD '99).

Jick, T. 1991. Implementing Change. Note: 9-191-114, Harvard Business School Press, Boston.

Judson, A. 1991. Changing behavior in organizations: Minimizing resistance to change. Cambridge, MA: Basil Blackwell.

Kelly, D. & Amburgey, T. L. 1991. Organizational Inertia and Momentum: A Dynamic model of strategic change. Academy of Management Journal, 14: 591-612.

Kerlinger, F. N. 1973. Foundations of behavioral research, second edition. New York: Holt, Rinehart and Winston, Inc.

Kirlik, A. 1998. The design of everyday life environments. In W. Betchel & G. Graham (Eds.), A Companion to Cognitive Science. Oxfird: Blackwell.

Klein, K. J., Tosi, H., & Cannella, J., A.A. 1999. Introduction to special topic forum: Multilevel theory building: Benefits, barriers and new developments. Academy of Management Review, 24: 243-248.

Kotter, J. 1996. Successful change and the force that drives it. Canadian Manager, 21(3): 20-24.

Kuzdzal, D. 2005. Dominie Garcia interview with Dan Kuzdzal, Partner, KPMG, Retail Consulting. Atlanta, GA.

Kwun, S. K. & Cho, N. 2001. Organizational Change and Inertia: Korea Telecom. Asia Pacific Business Review, 7(4): 111-137.

Lave, J. 1991. Situation Learning in Communities of Practice. In L. B. Resnick & J. M. Levine & S. D. Teasley (Eds.), Perspectives on Socially Shared Cognition. Washington, DC: American Psychological Association.

Lawrence, P. R. 1989. Why Organizations Change. In J. Mohrman, A.M. & S. A. Mohrman & J. Ledford, G.E. & T. G. Cummings & I. Lawler, E.E. (Eds.), Large-scale Organizational Change: 48-61. San Francisco: Jossey-Bass.

Lesser, D. 2005. Dominie Garcia interview with Dick Lesser, Senior Corp. Advisor, Director, TJX Corporation. Atlanta, GA.

Levine, J. M. & Moreland, R. L. 1991. Culture and Socialization in Work Groups. In L. B. Resnick & J. M. Levine & S. D. Teasley (Eds.), Perspectives on Socially Shared Cognition. Washington, DC: American Psychological Association.

Lewin, K. 1947. Resolving social conflict and field theory in social science. Washington D.C.: American Psychological Association.

Lewin, K. 1951. Field theory in social science. New York: Harper & Row.

Lisanti, T. 2002. New business practices reflect fresh face of retail, DSN Retailing Today, Vol. 41.

Loewe, P. M. & Bonchek, M. S. 1999. The retail revolution. Management Review, 88(4).

Majchrzak, A. & Wang, Q. 1996. Breaking the functional mind-set in process organizations. Harvard Business Review, September-October: 93-99.

Malhotra, N. K. 2004. Marketing research: An applied orientation. Upper Saddle River, NJ: Prentice Hall.

March, J. G. 1991. Exploration and exploitation in organizational learning. Organization Science, 2: 71-87.

March, J. G. & Simon, H. A. 1958. Cognitive limits on rationality, Organizations. Cambridge, MA: Blackwell.

McGahan, A. M. 2004. How Industries Change. Harvard Business Review, October: 87-94.

Mento, A. J., Jones, R. M., & Dirndorfer, W. 2002. A change management process: Grounded in both theory and practice. Journal of Change Management, 3(1): 45-59.

Meyer, A. D. 1982. Adapting to environmental jolts. Administrative Science Quarterly, 27: 515-537.

Miller, D. & Friesen, P. H. 1980. Momentum and revolution in organizational adaptation. Academy of Management Journal, 23: 591-614.

Mintzberg, H., Raisinghami, D., & Theoret, A. 1976. The Structure of Unstructured Decision Processes. Administrative Science Quarterly, 21: 246-275.

Mohrman, J., A.M., Mohrman, S. A., Ledford, J., G.E., Cummings, T. G., & Lawler, I., E.E. 1989. Large-scale organizational change. San Francisco: Jossey-Bass Inc.

Morrison, E. W. & Milliken, F. J. 2000. Organizational Silence: A Barrier to change and development in a pluralistic world. Academy of Management Review, 25: 706-725.

Nadler, D. A. & Tushman, M. L. 1989. Organizational Frame Bending: Principles for Managing Reorientation. Academy of Management Executive, 3(3): 194-204.

Nadler, D. A. & Tushman, M. L. 1990. Beyond the charismatic leader: Leadership and organizational change. California Management Review, Winter: 77-97.

Nadler, D. A. & Tushman, M. L. 1997. Competing by design: The power of organizational architecture: Oxford University Press.

Nelson, R. R. & Winter, S. G. 1982. An evolutionary theory of economic change. Cambridge, MA: Harvard.

Nutt, P. C. & Backoff, R. W. 1997. Facilitating transformational change. The Journal of Applied Behavioral Science, **33**: 490-508.

Parasurman, R. & Riley, V. 1997. Humans and automation: Use, misuse, disuse and abuse. Human Factors, 39(2): 230-253.

Pascale, R., Millemann, M., & Gioja, L. 1997. Changing the way we change. Harvard Business Review, November-December: 126-139.

Pedhazur, E. J. 1997. Multiple regression in behavioral research. Orlando, FL: Harcourt.

Perkins, C. 2005. Dominie Garcia interview with Cheryl Perkins, CTO Kimberly Clark. Atlanta, GA.

Plunkett, J. W. 2001. Plunkett's retail industry almanac 2001-2002: The only comprehensive guide to retail companies and trends. Houston, TX: Plunkett Research, Ltd.

Plunkett, R.; Retail industry market research, trends, companies, statistics, business information, stores; www.plunkettresearch.com/retail/retail_trends.htm.

Porras, J. I. & Silvers, R. C. 1991. Organization development and transformation. Annual Review of Psychology, 42.: 51-78.

Poskon, P. 2004. Personal Conversation with Paula Poskon, Team Analyst, Lehman Brothers, retail sector, food and drug retailing and dollar stores. In D. Garcia (Ed.). Atlanta, GA.

Prahalad, C. K. & Hamel, G. 1990. The Core Competence of the Corporation. Harvard Business Review, 68(3).

Rajagopalan, N. & Spreitzer, G. M. 1996. Toward a theory of strategic change: A multi-lens perspective and integrative framework. Academy of Management Review, 22: 48-79.

Rasmussen, J. 1988. Cognitive engineering, a new profession? London: Taylor and Francis.

Resnick, L. B., Levine, J. M., & Teasley, S. D. 1991. Perspectives on socially shared cognition. Washington, DC: American Psychological Association.

Romanelli, E. & Tushman, M. L. 1994. Organizational transformation as punctuated equilibrium: An Empirical test. Academy of Management Journal, 37: 1141-1166.

Rothaermel, F. T. & C.W.Hill. 2005a. Technological discontinuities and complementary assets: A longitudinal study of industry and firm performance. Organization Science, 16: 52-70.

Rothaermel, F. T. & Hill, C. W. 2005b. Technological discontinuities and complementary assets: A Longitudinal study of industry and firm performance. Organization Science.

Rothaermel, F. T. & Hill, C. W. L. 2005c. Technological Discontinuities and Complementary Assets: A Longitudinal Study of Industry and Firm Performance. Organization Science, 16(1).

Rouse, W. B. 2005a. Enterprises as systems: Essential challenges and approaches to transformations. Systems Engineering, 8(2): 138-149.

Rouse, W. B. 2005b. A Theory of enterprise transformation. Systems Engineering, 8(4): 279-295.

Rozhon, T. 2005a. Teaching Wal-Mart New Tricks, The New York Times. Bentonville, AK.

Rozhon, T. 2005b. In a Shopping Frenzy, The New York Times. New York.

Schein, E. H. 1984. coming to a new awareness of organizational culture. Sloan Management Review, 25(2): 3-16.

Schein, E. H. 1996. Culture: The missing concept in organization studies. Administrative Science Quarterly, 41(2): 229-240.

Schumpeter, J. 1942. Capitalism, socialism, and democracy. New York: Harper & Row.

Seidman, I. 1998. Interviewing as qualitative research. New York: Teacher's College Press.

Senge, P. M. 1990. The fifth discipline. New York: Currency Doubleday.

Silverman, D. 2001. Interpreting qualitative data. London: Sage.

Sovey, W. P. 2005. Dominie Garcia interview with Pierre Sovey, retired CEO and Chairman, Newell Rubbermaid. Atlanta, GA.

Stanton, N. A., Ashleigh, M. J., Roberts, A. D., & Xu, F. 2001. Testing Hollnagel's Contextual Control Model: Assessing team behavior in a human supervisory control task. International Journal of Cognitive Ergonomics, 5(2): 111-123.

StatSoft; Principal components and factor analysis; www.statsoft.com/textbook/stfacan.html. Accessed January 2006.

Strang, R. 2005. Dominie Garcia interview with Randy Strang, VP UPS Supply Chain Solutions. Atlanta, GA.

Steele, R. 2005. Dominie Garcia interview with Rob Steele, President, North American Group, Proctor & Gamble. Atlanta, GA.

Teece, D. J. 1986. Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. Research Policy, 15: 285-305.

Thompson, G.; 2006. Wholesalers: Encyclopedia of Global Industries. Business and Company Resource Center. Farmington Hills, Mich., Gale Group

Tohmatsu, D. T. 2005. 2005 Global Powers of Retailing, Stores, Vol. January 2005.

Tripsas, M. & Gavetti, G. 2000. Capabilities, cognition, and inertia: Evidence from digital imaging. Strategic Management Journal, 21: 1147-1161.

Tushman, M. L. & Anderson, P. C. 1986. Technological discontinuities and organizational environments. Administrative Science Quarterly, 31: 439-465.

Tushman, M. L. & O'Reilly, C. I. 1996. The Ambidextrous Organization. California Management Review, 38(4).

Tushman, M. L. & Romanelli, E. 1985. Organizational evolution: A Metamorphosis model of convergence and reorientation. Research in Organizational Behavior, 7: 171-222.

Tushman, M. L. & Rosenkopf, L. 1992. Organizational determinants of technological change: Toward a sociology of technological evolution. Research in Organizational Behavior, 14: 311-347.

Tushman, M. L. & Smith, W. K. 2002. Organizational technology. In J. A. C. Baum (Ed.), The Blackwell Companion to Organizations: 386-414: Blackwell.

Vicente, K. J. 1999. Cognitive work analysis: Toward safe, productive and healthy computer-based work. Mahwah, N.J.: Lawrence Erlbaum.

Watzawick, P., Weakland, J., & Frisch, R. 1974. Change. New York: Norton.

Weber, J. & Palmer, A. T. 2005. How the Net is Remaking the Mall, BusinessWeek, Vol. May 9.

White, C. & Belman, D. 2006. Transformation in the Logistics Industry. In W. B. Rouse (Ed.), Enterprise Transformation: Understanding and Enabling Fundamental Change: John Wiley & Sons.

Williamson, O. E. 1999. Strategy research: Governance and competence perspectives. Strategic Management Journal, 20: 1087-1108.

Yin, R. K. 2003. Case study research: Design and methods. Thousand Oaks, CA: Sage.