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**Organizations: A Conceptual Framework and an Integrated Testable Model**

by

**Elizabeth A. Letzler**

**A dissertation submitted to the Graduate Faculty in Business in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.**

2004

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## APPROVAL PAGE

This manuscript has been read and accepted for the Graduate Faculty in Business in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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## Abstract

## Organizations: A Conceptual Framework and an Integrated Testable Model

by

Elizabeth A. Letzler

Adviser: Dr. Richard E. Kopelman

This dissertation proposes and tests an Integrated Testable Model (ITM) that builds on organization models previously described in the literature; integrates cooperating and competing interests and process theories; and describes how practices, decision-making, and activity and interactions within the organization affect its performance. Each variable is operationalized so that hypotheses derived from their interrelationships can be tested using systematic and empirical research methods. The cooperating and competing interests perspective (rows), based on Simon's (1945; 1997) and stakeholder theory models, is comprised of three dimensions—customers, employees and suppliers, and entrepreneur-managers—and provides the platform for the organization's structure and agenda to form. The five component process perspective (columns), based on the simple economic input-output process models, describes how decisions about practices to employ are linked to performance and provides the platform for the organization to create value.

Three portfolios of 26 practices each—Customer Directed Practices, Employee and Supplier Directed Practices, and Enterprise Directed Practices—were created by developing and obtaining 1156 completed questionnaires, and reducing the questionnaire's 137 items. Six sets of hypotheses that describe the interrelationships among ITM's seven

variables are tested using exploratory factor, structural equation modeling, and multiple regression analyses. The data support for five sets of hypotheses, and demonstrate a clear and significant link between the practices managers employ and how well their organizations perform.  $R^2$  of .59 indicates a large effect size. Total effect on Organization Performance of Customer Directed Practices is medium-sized at .34, Employee and Supplier Directed Practices is small-sized at .26, and Enterprise Directed Practices is large-sized at .59. Statistical output is included in the attached CD.

This research may contribute to the academic management literature by proposing and testing ITM, providing a means to identify a large effect size relationship between actions taken and organization performance, and integrating various disciplines like marketing, quality management, human resources management, operations management, and production management. With the refinement of methodology and establishment of norms, ITM may potentially be a tool managers can use to improve organization performance.

## ACKNOWLEDGEMENTS

Completing a rigorous doctoral program including a dissertation requires the time, talent, and patience of many; but to do so while at the same time raising three children imposes on many others. I would first like to thank my husband Stephen and our children David, Peter, and Stephanie for their support, patience, independence, and resourcefulness. Next, a heartfelt thanks to Dr. Richard E. Kopelman, my dissertation advisor, for offering me the opportunity to work with him; his patience, intellect, and insight into how organizations really operate; the piles of articles; and his guidance and genuine interest in me and this project. Without him my dissertation would likely be written, but it would be very different. Plus, the journey has been a pleasure! I also thank the other members of my committee—Dr. Allen I. Kraut, Dr. Moshe Banai, and Dr. David Rindskopf—for their time, talent, input, and patience. Finally, I would like to thank the two other members of my cohort for their friendship and support, and the faculty and staff of the Zicklin School of Business.

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CDfile 1: Descriptive statistics for practice items by portfolio
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CDfile 3: Variable Descriptive Statistics
CDfile 4: Missing Data Analysis
CDfile 5: Sample Descriptive Statistics
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## Chapter 1

### INTRODUCTION

#### **A Society of Organizations**

Evidence of humans working together for results they could not achieve alone extends into history thousands of years: the great pyramids of Egypt, the Coliseum in Rome, the Great Wall in China, the Mayan temples in Central and South America. The first Chinese Emperor Qin's burial mound consisting of a complete standing army handmade of terra-cotta was constructed 2200 years ago by 720,000 men over a 40 year period (Jianmin & Lin, 2001). The unique and open-ended capacity to leverage human effort has made organizations "the vehicle of choice for carrying out much of the work of modern society" (Magretta, 2002:5).

Organizations affect how and how well we all live. According to Coase, "the efficiency of the whole economic system depends to a very considerable extent on what happens within these economic molecules [organizations]" (1988a:6). Organizations mobilize and concentrate resources and power. They generate wealth and power, and shape the society they exist within. "[I]t is through organizations ...that classes are constituted and reproduced, stratification systems created and stabilized (and changed in some cases), political processes tamed and guided, and culture itself shaped and

molded” (Perrow, 1972; 1993:278, third edition).<sup>1</sup> Organizations determine the standards of living within a society by creating wealth through efficiency, innovation, and trade; and then distributing it through pricing, and choice and location of markets (Ghoshal, Bartlett & Moran, 1999). They absorb functions otherwise performed by families and communities through constructing codes of conduct and mechanisms to enforce them, and providing elements of the social safety net like child care, pension benefits, medical care, and insurance. They produce and distribute the basic essentials of life like food, water, health care, transportation, and education. Organizations can also impose upon society negative externalities like environmental damage, unemployment, unsafe working conditions, and terms of employment that preclude basic elements of human freedom and dignity (Perrow, 1972; 1993; 2002). For decades, organizations have globalized—individually extending their operations to more and more nations. Indeed, Berle and Means’ (1932; 2002, fourth edition) question of 70 years ago whether organizations might one day supercede the state in dominance in society appears more and more prophetic. Today we live in a “society of organizations” (Drucker, 1993:49) in which markets do not substitute for but complement organizations; and begin where organizations end (Simon, 1945; 1997, fourth edition; Ghoshal, Bartlett & Moran, 1999).

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This dissertation references several books classic to the management discipline. Typically, I had access to and used recent editions or printings instead of the original work. When such a book is first cited, I indicate the original date of publication, the edition or printing used, and its date of publication. All subsequent citations include the publication dates of both the original and the volume used.

## Research Overview

What are organizations and what do they do? The next two chapters comprise the theory portion of this research. An organization model, an Integrated Testable Model (ITM) is proposed in Chapter 3 that builds on organization models previously described in the literature and integrates two organization theories; describes how organization practices and activity and interactions within the organization affect its performance; and operationalizes each variable. Nine axioms, or assumptions, are set forth that describe what organizations are, their three core dimensions, and the motives for engagement of those dimensions with one another. The theory portion of this dissertation concludes by proposing six sets of hypotheses that seek to explain how organizations operate, and how decisions about practices employed affect organization performance. The remaining three chapters describe the four-step research design created to test the six sets of hypotheses, and present the results.

Chapter 2 begins by adopting the definition of the term *organization* as “[A] systematic arrangement of people brought together to accomplish some specific purpose” (Robbins & Decenzo, 2001:3). Next, a selection of existing organization models are reviewed and categorized into three theory types: process, team-style, and cooperating and competing interests. Process theory describes organizations from the perspective of the operating structure and how it uses members’ effort and skill to achieve a purpose. Team-style theory describes organizations from the perspective of members and how they use structure to work together to achieve their purpose. Cooperating and competing interests theory describes organizations from the perspective of purpose and how the

members interact with one another to produce a structure through which purpose can be achieved. An organization model 2T3D is proposed. It incorporates both process and cooperating and competing interests theories (the 2T in the name), and includes three dimensions based on Simon's (1945; 1997) cooperating and competing interests theory model (the 3D in the name). 2T3D describes the organization and the nature of its activities, defines the organization's outcomes, and provides a perspective for the remainder of this research. The chapter concludes by setting forth the first four axioms that describe 2T3D's three dimensions as customers, employees and suppliers, and the entrepreneur-manager (EM); their roles within the organization; and asserts EM as the focal dimension responsible for the organization's operations and performance in terms of profits and survival, and limits EM to those persons within the organization who make integrated decisions that materially affect organization performance.

Chapter 3 integrates the findings of the previous chapter and proposes ITM. First, a five component process model (5CPM) is proposed that demonstrates how decisions made within the organization about which practices to employ are linked to organization performance. ITM results from overlaying 2T3D onto 5CPM. ITM integrates two organization theories; describes how organization practices, decision-making, and activity and interactions within the organization affect its performance; and operationalizes each variable. ITM is intended to meet the needs of scholars by being well grounded in theory and research; practitioners by being practical and prescriptive; and both scholars and practitioners by being testable using systematic and empirical research methods. ITM demonstrates how decisions EMs make about which practices to employ are linked to

organization performance. EM selects individual practices from the universe of practices available and constructs three practice portfolios to accomplish specific objectives. Through these practice portfolios organizations develop unique capabilities. These capabilities then directly affect organization performance. Practice portfolios and their corresponding capabilities are organization assets that can increase in value over time as improvements are made, or deteriorate if maintenance is ignored. Five axioms describing the motives for each dimension to engage with the organization complete the foundation for the remainder of this dissertation. The chapter concludes by proposing six sets of hypotheses that describe the interrelationships among ITM's seven variables and can be tested systematically and empirically.

Chapter 4 details three of the four steps in the research design created to test the hypotheses proposed at the end of Chapter 3. In the first step I constructed an initial questionnaire of 149 items that operationalized the seven variables (i.e., the three practice portfolios, the three corresponding capabilities, and organization performance) specified in ITM. This involved conducting extensive surveys of both the general and academic management literatures for statements about practices that are both employed by organizations and associated with good or improved organization performance. The 1637 resulting items were then consolidated, refined, and reduced into 137 practice statements, nine capability measures, and three Organization Performance measures. In the second step, I surveyed American Management Association and New York State Securities Analysts seminar participants over four months during the spring of 2002, collecting 1156 completed questionnaires. In the third step I derived a final measurement instrument

comprised of those practice items that demonstrate both statistical coherence (reliability) with a specific practice portfolio and association with the corresponding capability (criterion-related validity). To do this, I used statistical evidence as a guide to reduce the number of practice items to 78, or 26 per portfolio. Factor, reliability, and item-outcome correlation analyses on the three final portfolios indicate strong reliability and high criterion-related validity. Discriminant analysis indicates there is a clear difference in practice employment between high scoring and low scoring cases for each portfolio.

Chapter 5 details the fourth step in the research design by evaluating the hypotheses proposed in Chapter 3 against the data collected and prepared in Chapter 4 using exploratory factor, structural equation modeling (SEM), and multiple regression statistical analyses. The chapter begins by describing the sample and explaining SEM basics. Next, ITM's factor structure is established. Then the relationships that the hypotheses describe among ITM's seven variables are evaluated. The chapter concludes with an analysis of the results and evaluation of each hypothesis. The data provide support for five of the six hypotheses.

Chapter 6 seeks to integrate and focus this research, and provide the reader guidance on its meaning and application. It begins with a discussion of the findings and potential contributions to the academic and the practitioner literatures. Next, twelve limitations of the research are identified and discussed. The third section identifies some of the opportunities for future research opened up through this dissertation. The chapter and this dissertation end with a brief conclusion restating and tying together the dissertation's overall thematic messages.

## Chapter 2

### ORGANIZATION THEORIES: THREE PERSPECTIVES

#### Introduction

This chapter investigates what organizations are and categorizes a selection of existing organization models as process, team, or cooperating and competing interests theory types. A dual theory, three-dimensional organization model that integrates both process and cooperating and competing interests theories is proposed. Four axioms that conclude the chapter describe the organization and its dimensions, establish the entrepreneur-manager as the focal dimension responsible for the organization's operations and performance in terms of profit and survival, and limits the entrepreneur-manager to those persons within the organization who make integrated decisions that materially affect organization performance. This chapter sets the stage for the formulation and subsequent testing of an Integrated Testable Model.

#### Definitions

*Random House Webster's College Dictionary* (Webster, 1996:953) defines organization as "a group of persons organized for some end or work". The term *organization* is presented in various ways depending upon its intended use (see Appendix 1). At times firm, corporation, and organization are used interchangeably. Some authors provide definitions (Barnard, 1938; 1968, thirtieth anniversary edition; Katz & Kahn, 1966; 1978 second edition; Gerstein, 1992; Mahoney & Pandian, 1992; Ghemawat & Costa, 1993; Williams, 1994; Donaldson & Preston, 1995; Robbins & Decenzo, 2001; *Business: The Ultimate Resource*, 2002). Others focus on function (Barnard, 1938; 1968;

Coase, 1988a; Conner, 1991; Drucker, 1993; Perrow, 1972; 1993; Simon, 1945; 1997; Mayo, 2001) or intended outcome (Drucker, 1993; Ghoshal, Bartlett, & Moran, 1999; Hall, 1972; 1999:3, seventh edition: Collins, 2001; Magretta, 2002). There appears to be agreement that organizations are collections of members united in pursuit of some end they could not achieve alone. This paper adopts the definition of the organization advanced by Robbins & Decenzo (2001:3): “[A] systematic arrangement of people brought together to accomplish some specific purpose”.

The terms *theory* and *model* are often used interchangeably. The definitions may appear to be similar or even overlapping; but they are unique. Webster provides several definitions for *theory* pertinent to academic research: “1. A coherent group of general propositions used as principles of explanation for a class of phenomena: *Darwin's theory of evolution*. 2. A proposed explanation whose status is still conjectural. 3. A body of mathematical principles, theorems, or the like, belonging to one subject: *number theory*. 4. The branch of a science or art that deals with its principles or methods, as distinguished from its practice: *music theory*. 5. A particular conception or view of something to be done or of that method of doing it. 6. A guess or conjecture. 7. Contemplation or speculation” (1996:1334). Webster provides a definition for *model* pertinent to academic research: “a simplified representation of a system or phenomenon, as in the sciences or economics, with any hypotheses required to describe the system or explain the phenomenon” (1996:843). Although the semantic distinction between theory and model is not a line of inquiry within this research, it is important that the terms be used appropriately. Within this dissertation, the term *theory* will be used when referring to a

conceptual explanation or abstract idea. The term *model* will be used when referring to a tangible or graphical representation of a concept.

### **Literature Review**

Embedded in the above definition of *organization* are three basic components: structure, members, and purpose (Robbins & Decenzo, 2001). This definition does not describe what an organization looks like, its boundaries, how the components interact, why they are included, or why others are not included. A conceptual organization theory is needed to fill this void. There are many theories that explain and models that describe what an organization is and does, and an extensive literature that focuses on them. The review below focuses on the sub-stream of writing that describes whole organizations as individual entities including each of the three components<sup>2</sup>. Organization theories and models are categorized into three types: those that describe organizations as a process or set of processes, a team, or a set of cooperating and competing interests. Conceptually, process theory describes organizations from the perspective of the operating structure and how it uses members' effort and skill to achieve a purpose. Team-style theory describes organizations from the perspective of members and how they use structure to work together to achieve their purpose. Cooperating and competing interests theory describes organizations from the perspective of purpose and how the members interact with one another to produce a structure through which purpose can be achieved. This review is

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Accordingly, this dissertation does not pursue other sub-streams of the organization literature such as decision-making, organization change, learning, etc.

intended to provide a sampling of the literature and does not attempt to cover it exhaustively.

**Process Theory.** Economic theory conceptualizes the organization as a closed system<sup>3</sup> mechanism for transforming inputs into outputs (Coase, 1988a), as depicted in Figure 1. This is the simplest process model and the basis of most others. The simple economics input-output (SEIO) model describes how inputs enter the organization, are transformed through the effort and skill of the members, and then exited from the organization. The organization is and exists within the transformation process. It is an intermediate variable, both exogenous and endogenous, mediating inputs and outputs. Structure includes both the method of transformation as well as members' method of applying skill and effort individually and together. Purpose is to produce and expel the output. SEIO provides the conceptual basis for Habitat for Humanity's elegant description of its mission plan. In a phrase, basic construction materials subjected to the Habitat for Humanity process are transformed into simple, decent, and affordable housing.

By adding an energetic return feedback loop to SEIO (see Figure 1), Katz and Kahn (1966; 1978) transform SEIO into an open system. Energetic input in the form of raw materials and human labor enter the organization and are transformed into energetic output. Maintaining the organization's activity requires continuous renewal of energy inflow. Proceeds from output sale provide the means for securing more raw materials and labor.

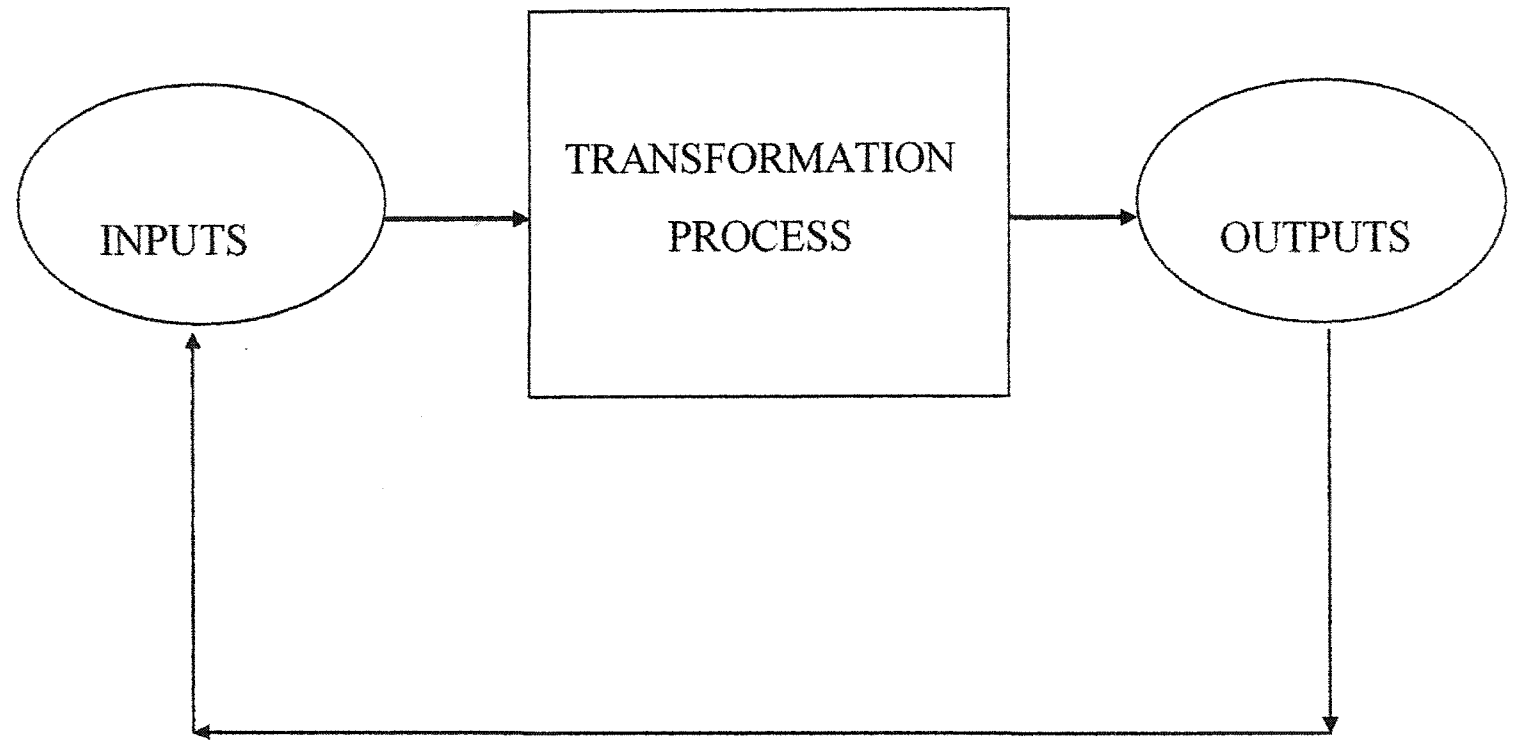
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The closed system organizational model conceptualizes the organization as a vehicle for achieving goals and economic efficiency. The open system model conceptualizes the organization as responding to external and internal input while pursuing goals and economic efficiency (Hall, 1977).

Figure 1

Simple Economics Input/Output Models

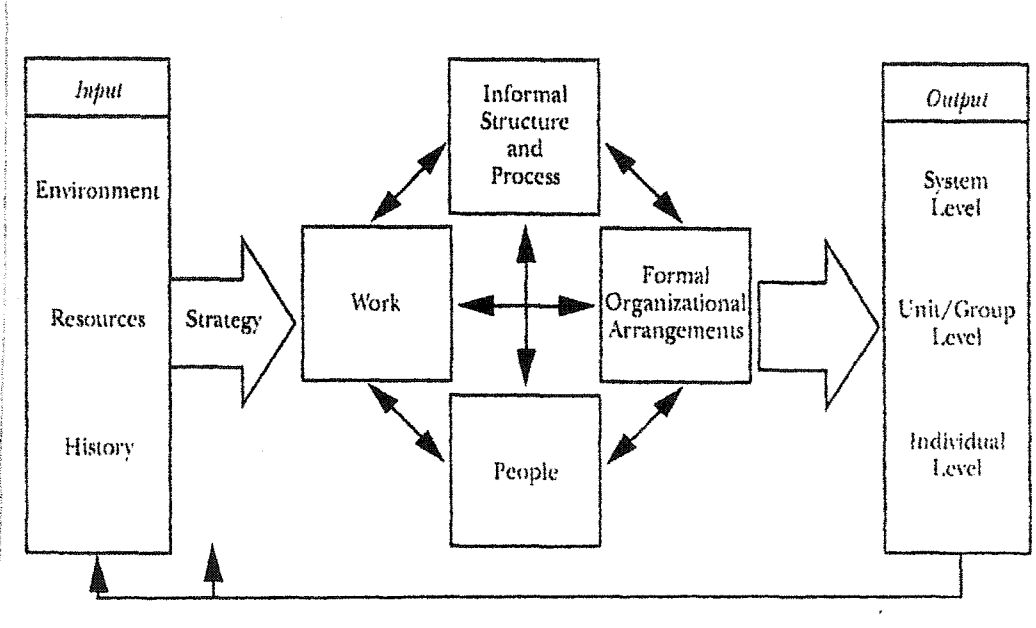


Energetic return feedback loop included in Katz and Kahn (1966; 1978) energetic input-output system.

The energetic return feedback loop furnishes the energy required to initiate a new cycle and continue organization activity. Katz and Kahn change SEIO in two ways. First, the organization is re-conceptualized from an episodic, one-way, closed system flow of energy to a continuous, open system of self-sustained activity. Second, the role of output is redefined from an end in itself to the means of organization survival.

Through their congruence theory of organizations, depicted Figure 2, Nadler and Tushman (1992) redefine organization purpose from producing and expelling output to being effective. Effectiveness is defined as “the degree to which actual organizational output is similar to expected or planned output as specified by strategy” (p. 52). The central hypothesis of their theory is that the greater the congruence among organization components, the more effective the organization will be. The congruence theory model develops SEIO in two ways. First, it identifies specific elements of each of the three components and describes how both they and the elements interact. Second, it demonstrates that output quantity is determined by how work is accomplished within the transformation process, not by quantity of effort expended or resources used. It changes SEIO in two ways. First, a fourth component—strategy—is added. Strategy is an input created by the organization and used to transform inputs into outputs. Second, as in the Katz and Kahn energetic return model (1966:1978), outputs are connected directly to inputs through a feedback loop such that inputs are not independent but directly affected by outputs. Outputs remain indirectly affected by inputs.

Figure 2  
Congruence Theory Organization Model



Source: Nadler and Tushman (1992:54)

The Human Capital Monitor (HCM) model, described in *The Human Value of the Enterprise* (Mayo, 2001<sup>4</sup>), constructs a conceptual framework in which people lend their human capital (i.e., inputs) to the organization, as depicted in Figure 3. The environment the organization provides transforms that borrowed human capital into value for stakeholders (i.e., outputs). Mayo also provides a methodology for measuring value and activity within each component.

HCM develops SEIO in three ways. First, it draws the analysis down from the macro overview level to a micro level by isolating one focal resource, human capital. Second, it proposes that the scope of an organization's resources is not limited to things consumed by the transformation process; rather, resources can also be assets that hold intrinsic value and must be managed for maintenance and growth. Third, similar to congruence theory (Nadler & Tushman, 1992), HCM asserts that through deliberate and reasoned decision-making, managers can change the level of output production through a more efficient transformation process and management of the resource stock. HCM changes SEIO in four ways. First, HCM defines outputs in terms of their value to recipients, not by what they are or that they exist. A result that holds no value to any recipient is not an output. Second, HCM incorporates stakeholder theory (Freeman & Reed, 1983) by expanding the scope of output-recipients to include shareholders, customers, employees, suppliers, and the community. Output recipients, such as

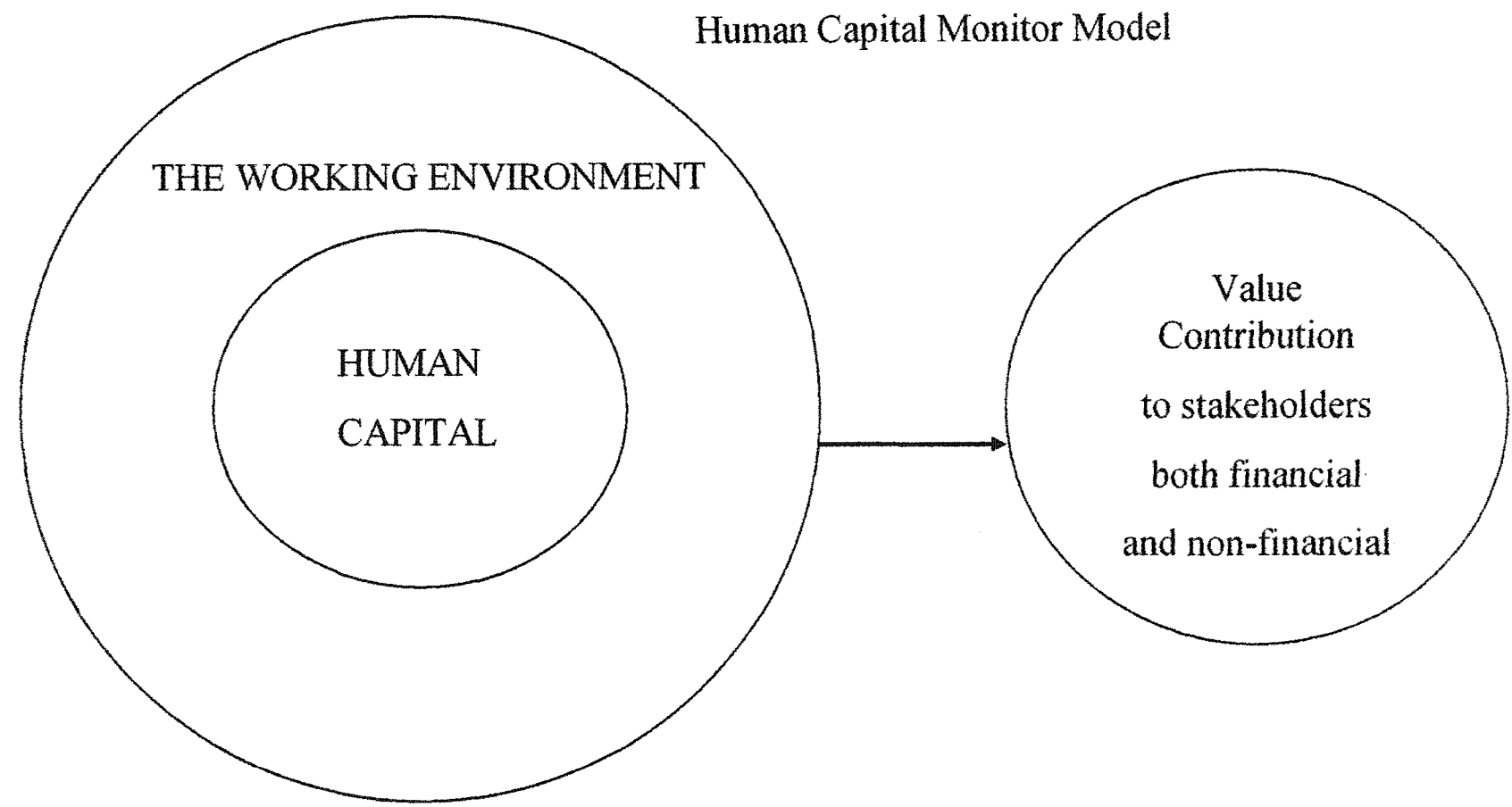
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Andrew Mayo is Programme Director at London Business School and Professor of Human Capital Management at Middlesex University Business School. To my knowledge he is of no relation to the well-know management theorist Elton Mayo.

Figure 3

Human Capital Monitor Model



Source: Mayo (2001:11)

employees, may also reside inside as well as outside the organization. Third, HCM is both abstract and practical. That people lend their human capital (i.e., inputs) to the organization is conceptual. The measurement methodology and prescriptive advice provide managers concrete guidance in ways to implement the theory. Fourth, the input component (i.e., human capital) is depicted as embedded in the transformation component (i.e., the organization environment). These two components are distinct but not separate.

**Team-Style Theory.** An early model of team-style organization theory using the human body as a metaphor for a church organization can be found in 1 Corinthians 12:12 to 27 of the *Bible (Holy Bible, 1989:174 New Testament)*. In this model, the organization is viewed as an egalitarian system of many members who each have a specific function but comprise one body. Membership provides a common base of experience to bond members to one another and the organization. Members accept and seek to fit within an imposed structure. Personal agendas are subordinate to that of the organization. Unity, harmony, and respect are required. Members have different roles, each of equal importance. There are clear distinctions between members and non-members and specific criteria (e.g., baptism) for becoming a member. Non-members are invited and encouraged to join. The status of lower ranking members is countered through efforts to build self-esteem. All members share in the result, good or bad. Unlike process theory, resources are not addressed. Although God is clearly identified as the ultimate leader, there is no provision for human leadership. The organization's purpose seems to be the act or experience of working and sharing fellowship together in harmony within the given structure.

In the *Post-Capitalist Society* Drucker (1993) likens the prototype of the modern organization to that of a traditional symphony orchestra composed of high-grade specialists. Music is made by the whole orchestra in concert, not any one member. Member specialties are subordinated to the common task as all members must play the same piece of music (although different instruments and notes) at the same time. Members accept and fit into a pre-established, imposed structure. There are specific criteria for obtaining member status and clear distinctions between members and non-members. The purpose appears to be to play together within a traditional symphony orchestra structure in seamless, perfect harmony. The better able a symphony orchestra is to do this, the more interested the public will be in coming to hear it perform.

The symphony orchestra metaphor differs from the human body metaphor in three important ways. First, members are a resource. Second, the group has a good deal of control over its performance. The more carefully members are selected for specific roles, the better able the group is to play together in seamless, perfect harmony. Third, members can affect the quality of the outcome through quantity of work in practicing together. Fourth, there is a focal leader, the conductor, who controls the activity of the group and each of its members. Conductor leadership style tends to be command and control. Often results are focused on or attributed to the leader.

Also in *The Post-Capitalist Society* Drucker (1993) describes organizations in terms of athletic teams. A cricket or baseball team is one body made of many members. Member contributions are additive as members play “*on* a team not *as* a team” (p. 86). Individual agendas are not subordinate to the common purpose. Members play different

positions, each of which is integral to the success of the team. There are clear distinctions between members and non-members, and specific criteria for joining. All members share the group result; but players are also judged on their individual performance. Coaches do not participate in play but provide leadership from the sidelines or during practice.

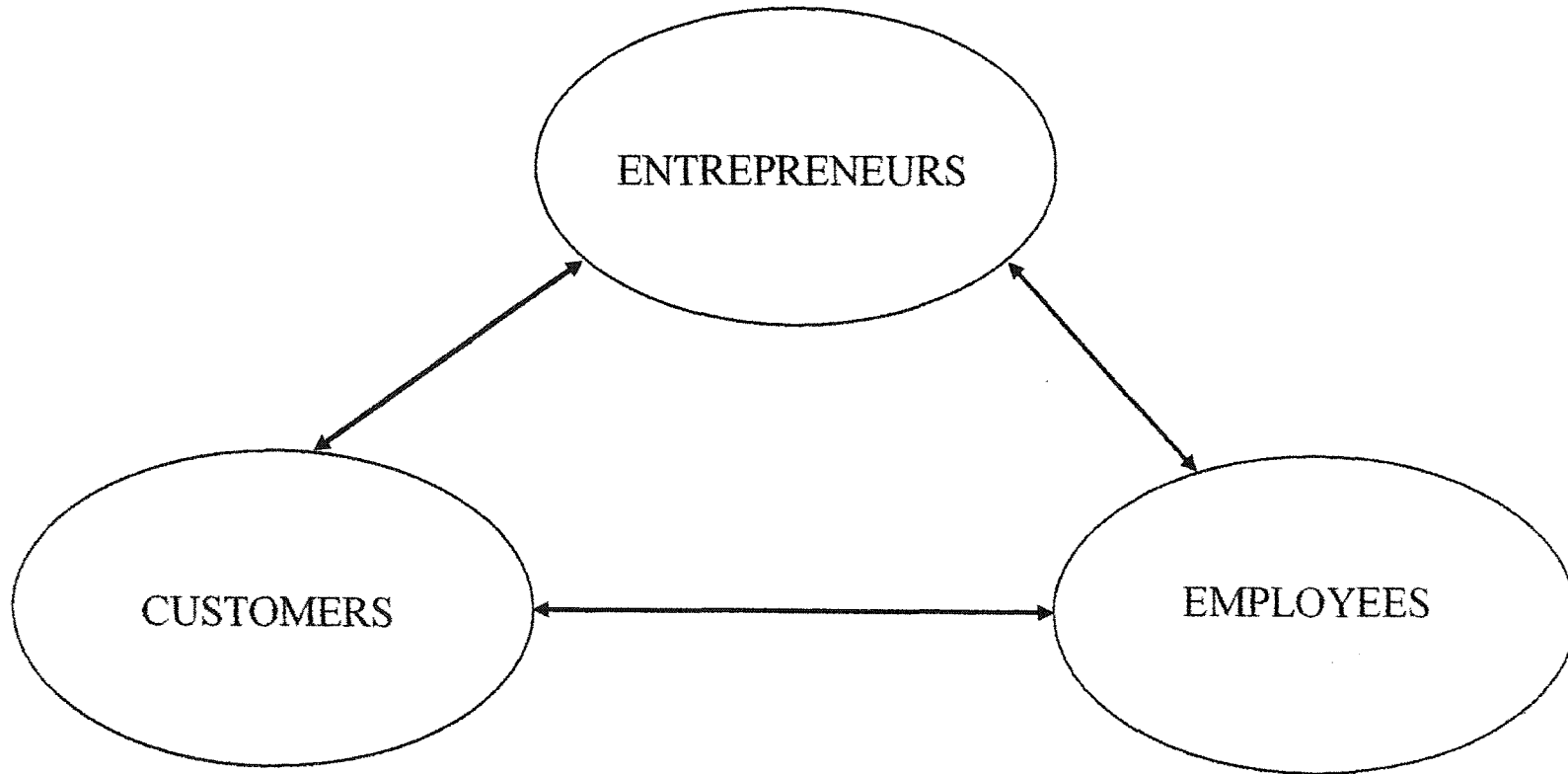
Members are the team's principal resource. The team's ability to play together within the imposed, pre-existing structure ultimately determines its success.

The organizational characteristics of soccer teams are similar to those of cricket and baseball teams except that soccer players play as a team like orchestra members. Team play results from the interaction of individual member contributions of skill and effort. This requires more practice as a group than baseball. Personal agendas are subordinate to that of the team. Members are the team's sole resource. The team's ability to play together within the imposed, pre-existing structure ultimately determines its success.

**Cooperating and Competing Interests Theory.** In *Administrative Behavior* Simon (1945; 1997) identifies three participants within a business organization: entrepreneurs, employees, and customers, as depicted in Figure 4. Entrepreneurs make decisions that ultimately control employee activities. Employees contribute undifferentiated time and effort to the organization in exchange for wages. Customers contribute money in return for products [services] at an attractive price. Revenue from sales to customers provides funds for employee wages. Profits, derived from an excess of revenue over cost, provide the entrepreneur the means and inducement to continue operations. The entrepreneur engages employees and customers through contracts that

Figure 4

Simon's Model of Three Participants in a Business Organization



Source: Simon (1945; 1997)

must be sufficiently advantageous to employees and customers to induce them to remain engaged with the entrepreneur; and sufficiently advantageous to the entrepreneur to induce him to continue his organizational efforts.

“The organization objective is, indirectly, a personal objective of *all* the participants. It is the means whereby their organizational activity is bound together to achieve a satisfaction of their own diverse personal motives” (p. 15). Customer objectives are closely and directly related to those of the organization. The entrepreneur’s objectives are closely related to the organization’s survival. Employee objectives are brought into the organization through the existence of the “area of acceptance” (p. 15), the degree that individuals willingly accept direction from others without questioning (Barnard, 1938; 1968).

Simon’s model ignores inputs and outputs, products and services. It does not address leadership, although it identifies the entrepreneur as the focal participant. Structure results from interaction among participants. Participants engage in the organization because they are motivated to capture value, or an excess of benefit over cost, for themselves. This value-seeking motive drives organizational activity as the organization is merely a means to an end. Participants compete with one another as they are motivated to maximize their capture of value. To achieve this, each participant also needs the cooperation of the others to generate value and is thus induced to assist them in achieving their purposes as well.

Simon assigns the motive for organization survival to the entrepreneur. For the organization to survive, its activity must create value and distribute it to all participants.

Through competition, participants can appropriate value from one another and thus satisfy their individual objectives (Ghoshal, Bartlett, & Moran, 1999). This only transfers value; it doesn't create it. If appropriation activity dominates or consumes too much organization activity, the organization may not create sufficient value to assure its survival. Then participants, including those who appropriated significant value through competing, may be worse off.

The traditional accounting income statement flow of funds provides a similar model using the following simple equation to summarize the flow of funds through the organization:<sup>5</sup>

$$\text{Revenue (price x quantity) - Cost = Profit}$$

Revenue exchanged by customers for products and services provides funds to pay employees and suppliers for their contributions in creating the products and services customers purchase. The excess of revenue over cost—profit—is credited on the balance sheet to retained earnings. These are either distributed to capital providers or invested in the organization's maintenance and growth.

The income statement chronicles how customers, employees and suppliers, the organization, and its decision makers (i.e., the entrepreneur participant), plus capital providers compete and cooperate. Customers are motivated to minimize revenue so as to maximize their capture of product value. This motive is constrained by the organization's need to generate enough revenue to cover cost and provide sufficient profit for the

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<sup>5</sup>

This equation summarizes flow of funds when referring to cash basis accounting. Substitute "value" for "funds" when referring to accrual basis accounting.

organization to survive and be induced to continue to do business with them. Employees and suppliers are motivated to extract as much cost from the organization as possible so as to maximize their capture of value (Ghoshal, Bartlett, & Moran, 1999). Their motive is constrained in two ways: first, by the organization's need to provide sufficient profit to survive and be induced to continue to employ or purchase from them, and second, by the customer's willingness to buy (i.e., quantity) and pay for (i.e., price) products and services. The entrepreneur is motivated to maximize both price and quantity of product and services sold, and minimize payment to employees and suppliers so as to maximize its capture of value, profit. The entrepreneur motive is constrained on the income statement in two ways: first, by the customer's willingness to buy (i.e., quantity) and pay for (i.e., price) products and services, and second, by the organization's need to induce employees and suppliers to provide continuity by continuing to contribute.

Entrepreneur and capital interests compete and cooperate for access to profits once they are transferred over to the balance sheet. The entrepreneur motive is to keep all earnings within either his or the organization's control to maximize availability for organization survival and growth and the entrepreneur's use. This is constrained by capital's motive to maximize its capture of value through extraction of organization funds in exchange for providing capital (Jensen, 2000; Berle & Means, 1932; 2002).

That owners should be the sole beneficiary of a corporation's success was questioned long ago when Taylor (1911; 1998) fretted that limiting distribution of the economic fruits of scientific management to employers and employees unfairly overlooked consumers, "[T]he rights of the people are therefore greater than those of either employer

or employee. And this third great party should be given its proper share of any gain” (p. 119). Barnard (1938; 1968) asserted that the corporation’s purpose is to serve society.

The term ‘stakeholder’ was defined in 1963 in an internal memorandum at the Stanford Research Institute as “*those groups without whose support the organization would cease to exist*” (Freeman & Reed, 1983:89). Freeman and Reed broaden the scope of the term with their classic 1983 definition, “*any identifiable group or individual who can affect the achievement of an organization’s objectives or who is affected by the achievement of an organization’s objectives*” (p. 91). Since then many books and articles have been written on the topics of stakeholders, stakeholder management, and stakeholder theory. Freeman and Reed review the literature and development of the stakeholder concept from Barnard to 1983. Mitchell, Agle, and Wood (1997) review the literature on stakeholder identification from 1984 to 1997 and create a typology of stakeholders depending upon their ability to influence the actions of the firm. The *Academy of Management Journal* published a Special Research Forum on Stakeholders, Social Responsibility, and Performance in October 1999. The April 1999 *Academy of Management Review* included an article on stakeholder influence strategies (Frooman, 1999) and convergent stakeholder theory (Jones & Wicks, 1999) plus four responses (Donaldson 1999; Freeman, 1999; Gioia, 1999; and Trevino & Weaver, 1999). The July 2001 *Academy of Management Review* included an article integrating stakeholder theory and organizational life cycles (Jawahar & McLaughlin, 2001).

Donaldson and Preston define the firm within stakeholder theory as “*organizations through which numerous and diverse participants accomplish multiple, and not always*

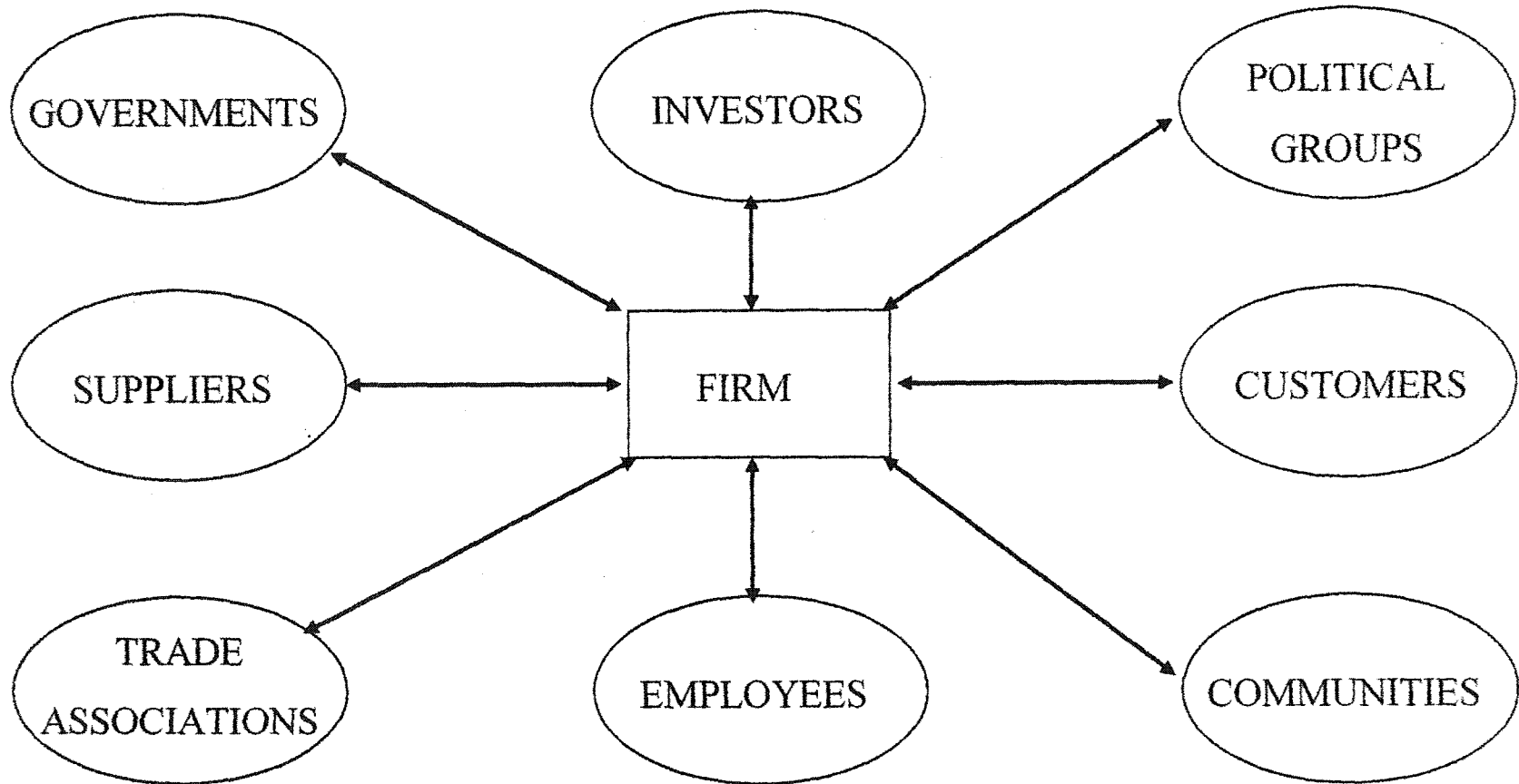
*entirely congruent, purposes”* (1995: 70). They describe the organization as “*a constellation of cooperative and competitive interests possessing intrinsic value*” (p. 66). Their model is depicted in Figure 5. Stakeholder theory is similar in many respects to Simon’s model (1945; 1997). All who participate do so voluntarily, with intent to obtain benefits, and on prima facie equal footing. Structure results from participant interaction. The components represent political interests. There are no inputs, outputs, products and services, or leadership.

This stakeholder theory model differs from Simon’s model in two ways. First, the focal or intermediary participants have different names. Simon labels that participant “entrepreneur”. Stakeholder theory assigns the label “firm”. The entrepreneur and the firm function similarly. They both contract with customers and employees, and control employee activity. They seek profits. Their motive is efficiency. They are responsible for the organization’s survival. Second, Simon identifies three participants. Equating the firm and the entrepreneur, the stakeholder theory model expands the number of participants to nine.

### **A Dual Theory, Three-Dimensional Organization Model**

The model presented below and depicted in Figure 6 describes the organization and the nature of its activity, defines the organization’s outcome, and provides a perspective for the remainder of this research. It integrates cooperating and competing

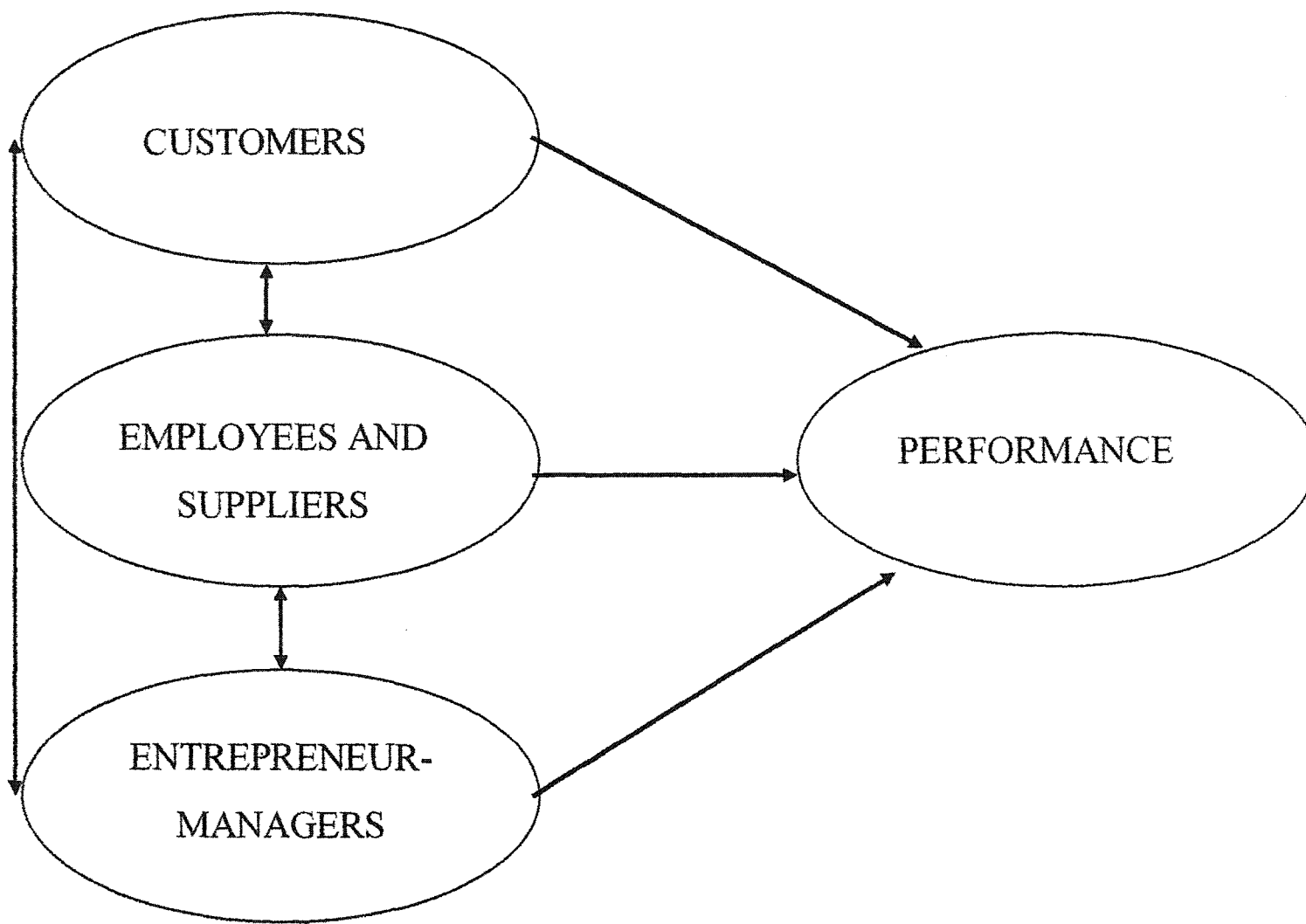
Figure 5  
The Stakeholder Organization



Source: Donaldson and Preston (1995:69)

Figure 6

A Dual Theory Three Dimensional Organization Model



interests theory, through Simon's three participant cooperating and competing interests model (1945; 1997), and process theory, through the SEIO models. The team-style organization theory type is not a part of this model, and will not be included in the remainder of this research. The model's three participants are referred to as dimensions; thus the title acronym 2T3D serves as shorthand for "two theories and three dimensions".

2T3D incorporates cooperating and competing interests theory through Simon's and stakeholder models by positing that the organization results from individuals working together purposefully. People are the driving force behind every organization. Although organizations are often associated with buildings, trademarks, logos, products and the like, they are comprised of people. Through their association together individuals own, control, or have access to an organization's buildings, trademarks, logos, products, etc.

2T3D incorporates process theory through the SEIO models by positing that the organization's purpose is to produce output, and views the organization as a process for transforming inputs. The input domain is not within the scope of this research and will not be investigated. The output component is defined as performance. It exists outside the organization (Drucker, 1993). According to *Webster* performance is "*the manner in which or the efficiency with which something reacts or fills its intended purpose*" (Random House, 1996:1003). This description is consistent with congruence theory (Nadler & Tushman, 1992) and Simon's entrepreneur's motive of efficiency. Output results from what organizations do (see Appendix 1). Under transaction cost theory efficiency is the organization's sole justification. "It was the avoidance of the costs of carrying transactions through the market that could explain the existence of the firm"

(Coase, 1994: 8). Performance is achieved, as it results from deliberate activity within the organization. It is also negotiated, as it is what individuals cooperate together to generate and compete against one another to distribute.

2T3D adapts Simon's model in two ways. First, suppliers are included within the employee dimension as they play a similar, if not at times indistinguishable, role in providing labor and intermediate goods and services. Although cost, risk, and other criteria may affect the entrepreneur's decision-making regarding the individual employment status of those who provide labor and intermediate goods and services, employment status is generally irrelevant to the production of final goods and services. Does it matter to a consumer that the tires were made by either Ford or Firestone employees? Does it matter to patients whether the halls and rooms are scrubbed by hospital employees or contract labor? The mix of employees and suppliers can and does run the gamut between the extremes. Fully integrated companies produce all their own raw materials and manufacture and assemble all their own product components. Virtual or "hollow" corporations (Teece, Rumelt, Dosi, & Winter, 1994) let contracts for all raw materials, manufacturing, and other organization activities and serve as a broker intermediary between the contracting parties. Through layers of majority and minority ownership positions, organizations can control the decision making, and distribution of power and resources in an organization in which it has a small ownership stake. They can determine what work is done by whom how, and lay claim to output, but do not consider themselves the workers' employer.

The relationship between the Coca-Cola Company (trading symbol KO), Coca-Cola Enterprises (trading symbol CCE), and Coca-Cola Bottling Company Consolidated (trading symbol COKE) provides an interesting example. Through direct minority ownership, officer and director shareholdings, and monopsony status as the dominant provider of raw materials and brand marketing, KO controls the decision-making, distribution of power, resource flow, profitability, and financial well being of both CCE and COKE without incurring the liabilities associated with their work forces, bottling processes, and steep debt levels. (Lee, 2003a; Lee, 2003b; Sanborn, 2003).

Second, the name of the entrepreneur dimension is expanded to entrepreneur-manager (EM). When Simon published his book in 1945 he may have adopted the label “entrepreneur” for this participant from the economics discipline. Simon’s entrepreneur is an integrated decision-maker who enters into contracts and directs the activities of employees, and is held accountable and responsible for the organization’s performance in terms of profit and survival. Very broadly, this is conceptually consistent with Coase’s (1937; 1988b:36n10 is reprinted in *The Firm, The Market, and The Law*) usage, “I shall use the term ‘entrepreneur’ to refer to the person or persons who, in a competitive system, take the place of the price mechanism in the direction of resources.” The entrepreneur directs production. In *Strategy and Structure* Chandler (1962; 1993:11, eighteenth printing) defines entrepreneurs as “executives who actually allocate available resources”. Usage of the term “entrepreneur” outside of economics and particularly in the current lexicon narrows the domain of the term to focus on those who specialize in innovation, initiative, and risk-taking. In *White Collar Mills* (1951) distinguishes between old

entrepreneurs who found and build new concerns, and new entrepreneurs who work within established firms but seek out uncertainty and new beginnings. In *The Nature of Managerial Work*, Mintzberg (1973, cited in Finkelstein & Hambrick, 1996) identifies ten managerial roles. In the entrepreneurial role, managers search for opportunities and initiate projects to bring about change. In their widely used text, Robbins & Decenzo (2001:G-4) define entrepreneurship as “[T]he process of initiating a business venture, organizing the necessary resources, and assuming the risks and rewards”. *Webster* defines *entrepreneur* as “a person who organizes and manages an enterprise, esp. a business, usu. with considerable initiative and risk” (Random House, 1996:447). In *The Visible Hand*, Chandler (1977; 1997, fourteenth printing) uses the term to refer to individuals who create enterprises.

This research adds the term manager to entrepreneur to update the label and broaden its scope. Drucker (1954; 1986:4, First Perineal Library edition) defines *management* as “the organ of society specifically charged with making resources productive.” According to Mintzberg (1994), management is an integrated, multi-level job. Berle and Means (1932; 2002) describe the two functions of a manager as having control over an enterprise and acting with respect to it. Robbins and Decenzo (2001) describe managers as individuals who direct the activities of others. *Webster* defines to *manage* as “to be in charge or control of an enterprise” and *manager* as “a person who manages an enterprise or one of its parts” (Random House, 1996:823).

Like Simon’s entrepreneur, EM is an integrated decision-maker who enters into contracts and directs the activities of employees; and is held accountable and responsible

for the organization's performance in terms of profit and survival. EM must also be innovative, and take initiative and risks in order to make profits and survive. This is consistent with Drucker's (1999:38) view in *Management Challenges for the 21<sup>st</sup> Century*, "management and entrepreneurship are only two different dimensions of the same task". Enterprises that do not engage in entrepreneurship and innovate will not prosper. Neither will entrepreneurs who do not learn to manage, nor managers who do not learn to innovate. Thus organizations must wed the entrepreneur and the manager together to generate profits and survive.

#### **Four Axioms**

The above discussion provides the basis for four axioms that describe the organization and its dimensions, establish EM as the focal dimension responsible for the organization's operations and performance in terms of profit and survival, limits the entrepreneur-manager to those persons within the organization who make integrated decisions that materially affect organization performance, and lay part of the foundation for the remainder of this research.

*Axiom 1: An organization is a system of customers, employees and suppliers, and entrepreneur-managers whose activity and interaction results in performance.*

EM is 2T3D's focal dimension. Whereas customers, and employees and suppliers affect organization performance by making decisions about whether to participate and at

what level, EM affects organization performance through decision-making.<sup>6</sup> EM makes decisions about which resources are transformed how and when into which products and services to be sold to which customers for what price. Content and combination of decisions can have powerful effects on organization performance. The perspective for the remainder of this research is through EM's eyes.

*Axiom 2: The entrepreneur-manager is the organization's focal dimension, responsible for operations and performance. The entrepreneur-manager is an integrated decision-maker who enters into contracts and directs the activities of employees; and is held accountable and responsible for the organization's performance in terms of profit and survival. The entrepreneur-manager's decisions about which resources are transformed how and when into which products and services to be sold to which customers for what price can have powerful effects on organization performance.*

In organizations where work is divided horizontally by function (e.g., sales, finance, manufacturing) EM is the president, the highest ranking employee. This so-called U-form (i.e., unitary) or functional structure was standard among organizations in the United States until about 1920 to 1940 when corporations began to diversify geographically and into related product lines. To cope with the overload of information,

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There is an extensive literature on the nature of decision-making, its processes, models, etc. Decision-making is not a line of inquiry in this research and is thus not pursued here. Axiom 2 assumes decisions are made.

dearth of useful information, and increasingly complex and diverse decisions, managerial responsibility began to be pushed down to lower levels. In the M-form (i.e, multi) or divisional structure the organization is divided into multiple operating units responsible for a set of closely related product lines or a geographic area (Williamson, 1970; 1975; Barney, 1997). EM here is the senior manager or division president who has full control over all functional activities and is responsible for sales, market share, operations, and profits. The corporate office allocates resources and monitors performance (Chandler, 1962; 1993; Hammond, 1994). The U-form structure continues to be used by small, single-product, or single-market organizations. As organizations continue to grow in complexity and diversity, decision-making and managerial responsibility continue to be pushed further down.

Some would argue that today EM includes nearly everyone within the organization. As the management function becomes professionalized, superiors no longer have performed or know much about the job of their subordinates. Thus everyone in the organization must take responsibility for its objectives, actions, and results (Drucker, 1993). Sanchez and Levine (1999) identify and discuss the consequence of eight changes in job structure associated with employees assuming responsibilities formerly held by managers. Schneider sees “accountability for the attainment of organizational goals almost everywhere!” (1999: 341). The decisions of all employees are not necessarily material to the organization’s achievement of goals and its survival. Thus all employees are not necessarily EM’s. This research narrows the scope of EM to include all personnel

with responsibility for making integrated decisions that materially affect the organization's ability to meet its goals and survive.

*Axiom 3: The entrepreneur-manager includes all personnel with responsibility for making integrated decisions that materially affect the organization's ability to meet its goals and survive.*

2T3D does not include shareholders or other capital providers, although they are important stakeholders. They are not an output, although they are very interested in output. Capital in the form of stockholder equity divorces ownership from control (Berle & Means, 1932; 2002). Capital is a passive interest focused on obtaining a return at least competitive with if not better than that of other available investments (Jensen, 2000; Berle & Means, 1932; 2002). Capital's involvement in the organization is determined by the current and anticipated future level of performance; it does not determine performance. Capital is not involved in day to day decisions, operations, or producing output. Shareholders hold a residual claim on the organization. Unless they also participate in the EM dimension, their ability to directly enforce their claim in publically traded companies is severely limited (see Appendix 2, Rule 14a-8 of the Securities and Exchange Commission Act of 1934). Waddock, Bodwell, and Graves (2002) differentiate primary and secondary stakeholders. Primary stakeholders include owners, employees, customers, and suppliers. Secondary stakeholders include non-governmental organizations, activists, communities, and governments. A finer-grained distinction might retain EM owners as primary stakeholders and include non-EM or passive owners as secondary stakeholders.

*Axiom 4: Unless shareholders and other passive capital providers also participate as entrepreneur-managers, they reside outside the organization as they do not directly affect organization performance.*

### **Chapter Summary**

This chapter investigates what organizations are and what they do. The organization definition “[A] systematic arrangement of people brought together to accomplish some specific purpose” (Robbins & Decenzo, 2001:3) is adopted for use throughout this research. A review of the sub-stream of writing from the literature about organizations that describes whole organizations as individual entities including structure, members, and purpose categorizes a selection of organization models into three types. Process theory describes organizations from the perspective of the operating structure and how it uses members’ effort and skill to achieve a purpose. Team-style theory describes organizations from the perspective of members and how they use structure to work together to achieve their purpose. Cooperating and competing interests theory describes organizations from the perspective of purpose and how the members interact with one another to produce a structure through which purpose can be achieved.

A dual theory, three-dimension organization model (2T3D) is proposed that describes the organization and the nature of its activity, defines the organization’s outcome, and provides a perspective for the remainder of this research. 2T3D integrates cooperating and competing interests theory, through Simon’s three participant cooperating and competing interests model (1945; 1997), and process theory, through the SEIO models. The four axioms that conclude the chapter describe the organization and its

dimensions, establish EM as the focal dimension responsible for the organization's operations and performance in terms of profit and survival, limits the entrepreneur-manager to those persons within the organization who make integrated decisions that materially affect organization performance.

## Chapter 3

### AN INTEGRATED TESTABLE MODEL AND HYPOTHESES

#### Introduction

This chapter proposes an Integrated Testable Model (ITM) that is intended to meet the needs of scholars by being well grounded in theory and research, practitioners by being practical and prescriptive, and both scholars and practitioners by being testable using systematic and empirical research methods. First, a five component process model (5CPM) is proposed that demonstrates how decisions EMs make about which practices to employ are linked to organization performance. Next, 2T3D is overlaid onto 5CPM to construct a dual theory, three-dimensional, five component organization model that uniquely integrates cooperating and competing interests and process organization theories; and describes how practices, decision-making, and activity and interactions within the organization affects its performance. ITM's seven latent variables are operationalized at the business unit or profit center level of analysis so that the six sets of hypotheses proposed at the end of the chapter can be tested systematically and empirically. Five axioms describing the motives for each dimension to engage with the organization complete the foundation for the remainder of this research.

#### A Five Component Process Model

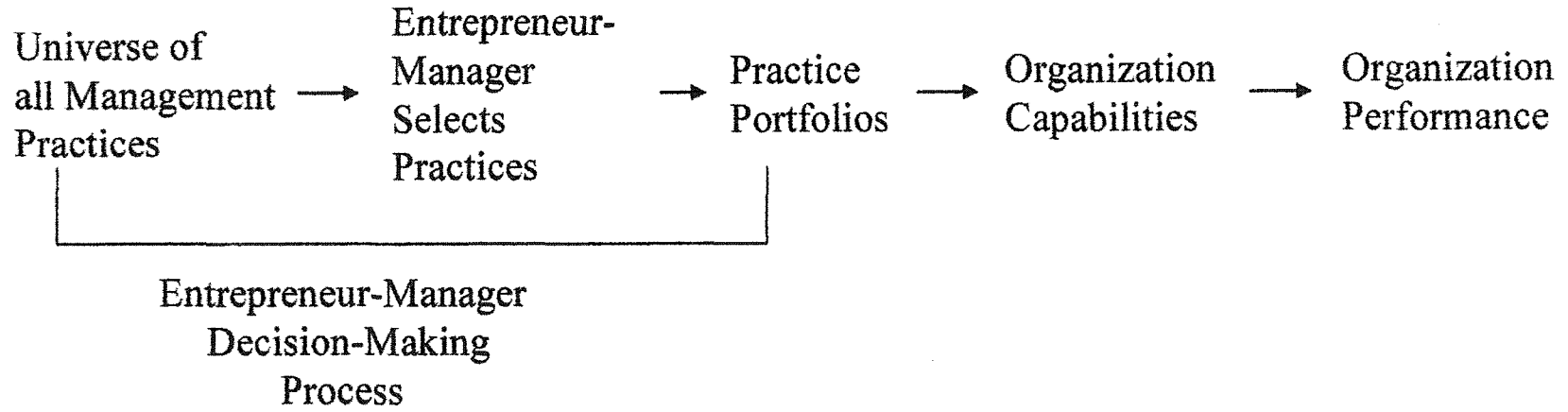
*Webster* defines practice as “a way of doing something” (Random House, 1996:1059). Going forward this research focuses on practices employed within the organization, why EM chooses them, and how those decisions affect organization performance. Management matters—differences in performance between organizations

result from decisions and actions taken inside organizations (Hansen & Wernerfelt, 1989; Rumelt, 1991; Collis & Montgomery, 1995; Collins, 2001). Purchase of resources on the open market (i.e., contestable resources) does not in itself create value for the organization as the profit stream associated with a contestable resource is available to any other purchaser and factored into the price. Organizations create value through decisions about which and how resources will be employed. By employing resources efficiently and in unique ways organizations can produce value in excess of that anticipated in the cost of the resources used (Montgomery & Wernerfelt, 1988; Grant, 1991; Pfeffer, 1998). No two managers are likely either to identify or prefer the same set of options. Nor would they be likely to implement them in the same way (Williams, 1994). Thus the collection or portfolio of practices selected, developed, and employed by EM is likely to be unique to the organization and a source of organization-specific performance differences.

5CPM, depicted in Figure 7, describes the process linking practices employed to organization performance, or value created. EM selects individual practices from the universe of practices available and constructs portfolios of management practices designed to accomplish specific objectives. Through these practice portfolios organizations develop unique capabilities that in turn directly affect organization performance.

The organization capability component is key to 5CPM. Capabilities result from employing the practices in the corresponding portfolio. Capabilities are an asset or stock;

Figure 7  
A Five Component Process Model



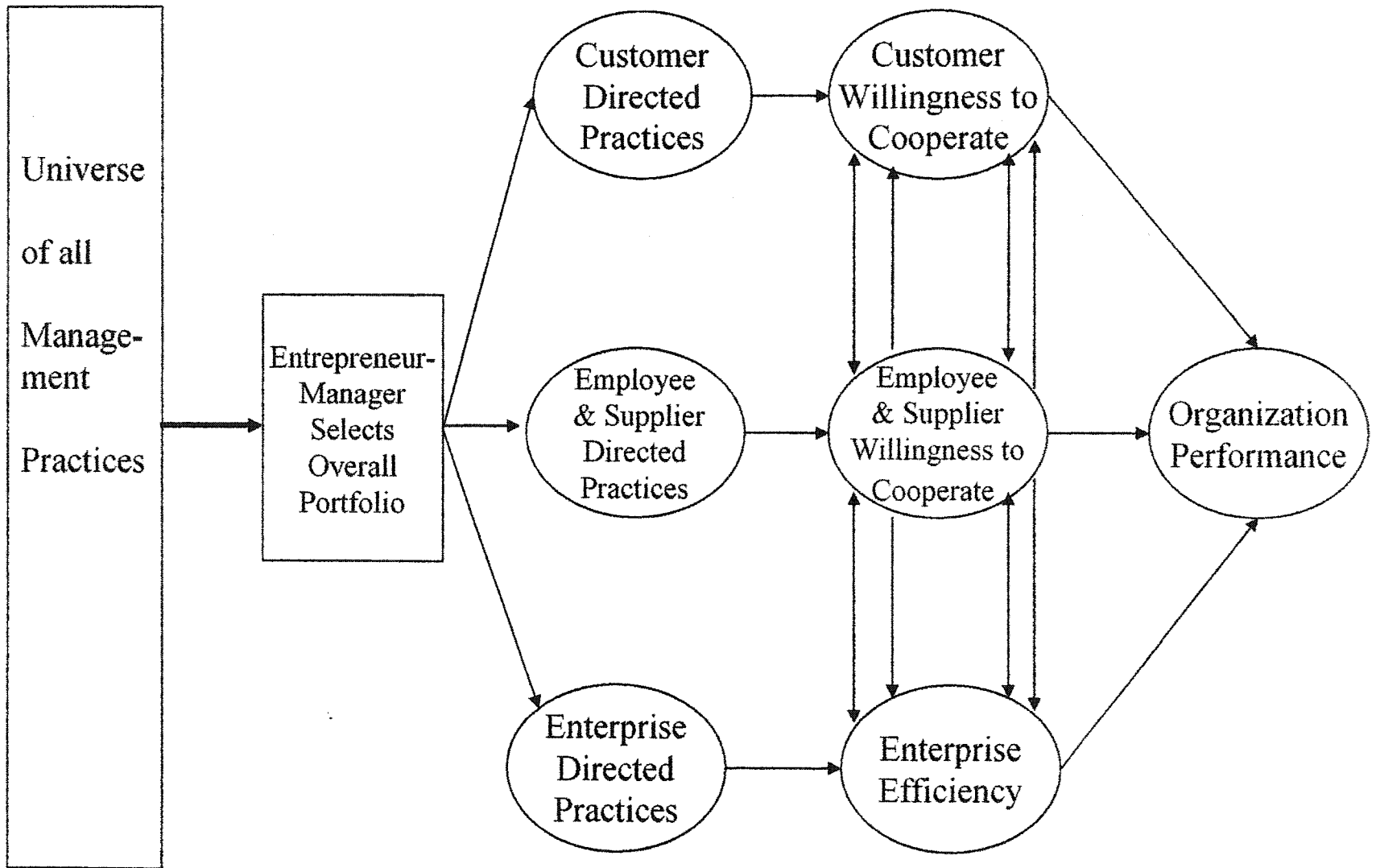
and are information-based, include technology, idiosyncratic, and developed over time (Amit & Schoemaker, 1993). Organization performance is driven by either quantity of effort or process capability. Process capability improvements boost performance level (Kumar, Scheer, & Steenkamp, 1995; Reppenning & Sterman, 2001). Capability is different from both climate and culture. [C]limate is the message employees get about what is important in their organization” (Schneider & Bowen, 1995:240). Culture “is the set of values and beliefs shared by employees” (Schneider & Bowen, 1995:240). These qualities may either help or hinder performance, but they do not directly cause it.

### **An Integrated Testable Model**

2T3D and 5CPM share two common constructs: EM as the common focal dimension and organization performance as the common final outcome. Overlaying the conceptual 2T3D onto the tangible 5CPM yields an organization process model of cooperating and competing interests. This model, depicted in Figure 8, is titled an Integrated Testable Model (ITM) as it:

- builds on organization models previously described in the literature;
- integrates cooperating and competing interests and process organization theories;
- is comprised of five components and three dimensions;
- describes how organization practices, EM decision-making, and member activity and interactions within the organization affect its performance; and

Figure 8 An Integrated Testable Model



- operationalizes each variable at the business unit, or profit center level, so that hypotheses derived from their interrelationships may be tested systematically and empirically.

The five components of 5CPM divide ITM horizontally into columns. The three dimensions of 2T3D join up in the third column and divide ITM vertically into rows. The dimensions are changed in two ways. First, the EM dimension of 2T3D is overlaid onto the EM component of 5CPM and is replaced on the third row by the enterprise EM organizes and manages. EM provides the nexus for the cooperating and competing interests and process theories to intersect. From cooperating and competing interests theory, EM enters into contracts, directs the activities of employees, and makes decisions about which resources are transformed how and when into which products and services to be sold to which customers for what price. This activity is lodged in the second component (column). From process theory, EM is responsible for the organization's operations and performance. The organization's operations, or transformation process, is lodged in the third row and labeled "enterprise", as it is what EM manages and has the most control over. As noted in Chapter 2, Berle and Means (1932; 2002) describe the two functions of a manager as having control over an enterprise and acting with respect to it. *Webster* defines *to manage* as "to be in charge or control of an enterprise" (Random House, 1996:823). Although EM and the enterprise are different, they are not separable. EM is one of Weber's (1947<sup>7</sup>) positions of rational legal authority where power and

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Weber died in 1920. Parsons and Henderson translated the works in this book. Parsons copyrighted and published it in 1947.

member allegiance accrues to the office, not the office-holder. Without an enterprise to control and manage, EM would have no means to transform inputs into outputs. Without EM's direction, transformation of inputs into outputs would be random. The focal point of ITM is EM's direction of activity within the organization.

Second, customers, employees and suppliers, and the enterprise are split and reconceptualized into two distinct components—portfolios of management practices and corresponding capabilities. This yields six elements (cells): three portfolios of practices and three capabilities. Portfolios represent the sets of practices EM, through the enterprise, chooses to employ to obtain what it seeks from each dimension. Each portfolio is directed toward the needs of a different dimension. The capabilities column represents EM's ability to obtain what it seeks from the dimensions. The individual capabilities represent the result to the organization of employing the corresponding practice portfolio.

Conceptually the rows represent cooperating and competing interests theory and provides the platform for the organization's structure and agenda to form. The collective efforts, both formal and informal, of the three interests determine the organization's mission, goals, and objectives: who is to contribute what and when, how value is to be distributed and when, what is a resource, how resources are to be used, how value is defined, what holds value, priorities, etc. This set of decisions and agenda is then implemented through the columns, or process theory perspective of ITM, that provide the platform for the organization to create value. Here EM identifies and employs practices designed to implement the organization's agenda and achieve the desired results. If the

value created by the organization is recurring and sufficiently large to induce the dimensions to maintain their engagement, the organization should survive and grow. If the value created is not sufficiently large or recurring, dimensions will either withdraw or seek to change the distribution of power and agenda.

Consistent with the Katz and Kahn (1966; 1978) and congruence theory (Nadler & Tushman, 1992), a feedback loop from organization performance to EM exists and should be included in ITM. Although this feedback loop completes the model, its investigation is beyond the scope of this research and thus it is neither included nor addressed here.

### **Five Axioms**

What does EM seek from customers, employees and suppliers, and the enterprise? What do they seek from EM? The five axioms set forth below describe the motives for each dimension to engage with the organization, and complete the foundation for the remainder of this research.

**Customers.** In Simon's model (1945; 1997) customers contribute money and in exchange receive value, or products [and services], at an attractive price. The entrepreneur receives funds to pay employee wages and provide profits as a means and inducement to stay in business. The entrepreneur is thus motivated to induce customers to remain engaged with the organization. Cash profits provide the means to secure new inputs through Katz and Kahn's (1966; 1978) energetic return feedback loop. Within the traditional accounting income statement flow of funds, customers contribute money and in exchange get product or service value and the organization's willingness to be induced to continue to do business with them. EM receives funds to cover cost and provide sufficient

profit to survive, as well as customer willingness to do business with the organization. Within stakeholder theory customers receive benefits in exchange for support (Freeman & Reed, 1983). In the marketing literature, customers seek out organizations that provide value through products and services that meet their needs and expectations (Srivastava, Shervani, & Fahey, 1998; Tax, Brown, & Chandrashekar, 1998; Drucker, 1999; Zeithaml, 2001; Dowling, 2002). The organization's motive is to build, maintain, and grow a business. This requires the organization to seek out recurring, predictable, and growing sources of both demand for its output and cash profits. EM is motivated to engage customers in a relationship with the organization such that they provide a recurring, predictable, profitable cash stream and help the organization grow through referrals, repeat purchases, and expanding the relationship (Heskett, Sasser, & Schlesinger, 1997; Tax, Brown, & Chandrashekar, 1998; Winer, 2001; Zeithaml, 2001; Dowling, 2002).

*Axiom 5: Customers seek value through products and services that meet their needs and expectations.*

*Axiom 6: The entrepreneur-manager seeks to build a base of customers willing to cooperate with the organization over time to provide a recurring, predictable, profitable, and growing cash stream.*

**Employees and Suppliers.** Within HCM, employees lend their human capital to organizations in exchange for wages and benefits. Through this human capital the organization receives capability, potential, contribution, and common values. The organization accesses human capital by persuading individuals to join, keeping them

engaged, and providing development opportunity (Mayo, 2001). In Simon's model employees give undifferentiated time and effort in exchange for wages. The entrepreneur obtains control over employee activities. The entrepreneur is motivated to induce employees to remain engaged with the organization (1945; 1997). Within the traditional accounting income statement flow of funds, employees and suppliers contribute labor and intermediate goods and services in exchange for value and the organization's willingness to continue to be a source of demand for their work and goods and services. Within stakeholder theory employees and suppliers receive benefits in exchange for supporting the enterprise (Freeman & Reed, 1983).

There is extensive research in the HRM literature regarding motives for engagement between employees and employers. It is not within the scope of this research to review or analyze this literature in depth. The roots of the terms of engagement were investigated and described well by Simon, Barnard, and Herzberg fifty or so years ago. Current research does not appear to challenge materially their findings. Individuals accept membership in an organization if their activity in it contributes to achievement of personal goals (Simon, 1945; 1997). Participation in an organization is determined by personal considerations based on a net balance of advantages versus disadvantages. Individuals are not fundamentally altruistic. They must be induced to cooperate through money, opportunity, and good working conditions (Barnard, 1938; 1968). Herzberg identifies two types of job characteristics. Hygiene factors concern the "conditions that *surround* the doing of the job" (Herzberg, Mausner, & Snyderman, 1959; 1999:113 third edition) and include salary, benefits, job security, working conditions, supervision, interpersonal

relations, and company policies and practices. Motivator factors are related to tasks, indicators of successful performance, or possibility of professional growth. Hygiene factors seem to address the question “Do I want to work here?” and appear consistent with other inducements mentioned. Motivator factors seem to address the question “How hard do I want to work?” For the organization to operate as an on-going, growing enterprise, EM is motivated to engage employees and suppliers in a relationship with the organization such that they provide a ready, predictable, reliable, growing source of labor and intermediate goods and services. As discussed above, willingness to cooperate and satisfaction are not the same.

*Axiom 7: Employees and suppliers seek to achieve personal goals through accepting inducements to cooperate with the organization. Examples of inducements include: money, secure demand for labor or goods and services, benefits, employment or contractual conditions, and opportunity for growth and advancement.*

*Axiom 8: The entrepreneur-manager seeks to build a base of employees and suppliers willing to cooperate with the organization over time such that they provide a ready, predictable, reliable, growing source of labor and intermediate goods and services.*

**The Enterprise.** Within the simple economic input output (SEIO) model, the purpose of the organization is to transform inputs into outputs using the least amount of input per unit of output produced (Coase, 1988a). Within congruence theory the organization’s purpose is effectiveness, or similarity of output produced to that specified

by strategy (Nadler & Tushman, 1992). In Simon's model the role of the entrepreneur is to create value through the enterprise and distribute it to customers and employees. In exchange, the entrepreneur receives profits and their willingness to remain engaged (1945; 1997). Within the traditional accounting income statement flow of funds, the organization's motive is to maximize revenue and minimize cost so as to maximize the profit retained for itself. Within stakeholder theory, EM seeks profits through efficiency (Freeman & Reed, 1983).

There is extensive research regarding organization operations and management. The roots of this literature were identified and described in the first part of the last century. Taylor (1911; 1968) focused on production efficiency as he sought to remedy the waste of human effort through inefficiency by using science to identify the best way to carry out work. Barnard focused on organization behavior as he sought "to provide a comprehensive theory of cooperative behavior in formal organizations" (Barnard, 1938; 1968:vii). Weber (1947) focused on designing a conceptual framework for organizations, the bureaucracy. Although today some aspects of these works may be considered dated and no longer useful, their underlying intent—to determine how organizations can grow in size and profitability through output expansion and operating efficiency—continues to be explored through TQM, reengineering, HRM, and many other management tools and techniques. In sum, EM's relationship with the enterprise involves operating *efficiency*, producing what people want at the least possible cost. (Random House, 1996; Case & Fair, 1999). EM provides the enterprise direction on how to operate efficiently such that it produces products and services customers want in a manner that satisfies the needs of

employees and suppliers (do the right things) and provides profit sufficient to induce EM to maintain operations and assure organization survival (do things right).

*Axiom 9: The entrepreneur-manager provides the enterprise direction on how to operate efficiently such that it produces products and services customers want in a manner that satisfies the needs of employees and suppliers (do the right things) and provides profit sufficient to induce the entrepreneur-manager to maintain operations and assure organization survival (do things right).*

**Practice Portfolios and Capabilities are Organization Assets.** Practice portfolios and their corresponding capabilities acquire value and status as an organization asset as capabilities and competitive advantage develop from assembly and employment of practice portfolios. This value can increase over time as improvements are made, or deteriorate if maintenance is ignored (Leonard-Barton, 1997; Repenning & Sterman, 2001). As specific practices, customers, and employees and suppliers become integrated into a capability, the importance of any one individual decreases and the organization is less vulnerable to the risk of the absence of any one. This strengthens the value of practice portfolios and capabilities as organization assets. That capabilities are and should be managed as assets is recognized in the marketing, HRM, and management literatures. Srivastava, Shervani, and Fahey (1998) suggest that marketing's role is not merely to achieve success in the marketplace, but to develop and manage market-based assets comprised of customers and distribution channels that will generate shareholder value through accelerated, enhanced, and less vulnerable cash flow. Dhar and Glazer (2003)

assert that the unpredictability of individual customers renders them risky assets. Thus customers should be acquired and portfolios of customers should be constructed, as are investment portfolios, based on expected value of future cash flows and diversification of risk. Mayo (2001) asserts it is essential for organizations to manage their employees as assets rather than costs. Boxall and Steenevald (1999) discuss HRM practices as firm assets and how organizations can improve performance by exploiting the potential of their human capital. The purpose of management tools and techniques such as the balanced scorecard, reengineering, best practices, and TQM is to identify and analyze what the organization does and how it does it to determine whether and how operating efficiency can be improved.

#### **ITM Addresses Some of the Criticisms of the Management Tools and**

**Techniques Literature.** A key feature of ITM is that it is testable using systematic and empirical research methods. None of the organization models described in Chapter 2 can be tested. This is also true of many of the management tools and prescriptions in use today, like Peters and Waterman's eight attributes of excellence (1984), the Seven Practices for Successful Organizations identified in *The Human Equation* (Pfeffer, 1998), and the 12 core elements needed to attract and retain employees identified in *First, Break All the Rules* (Buckingham & Coffman, 1999). The *Practices → Capabilities → Performance* segments (there are no hypotheses involving the *Universe of all Management Practices → EM → Practices* segments) can be tested at the business unit, or profit center, level of analysis. This level is appropriate as it is where revenue and cost meet, and the three sections of the income statement are derived. It is also where the

negotiation for and distribution of value created occurs. Practice portfolios can be operationalized by inventories of business practices targeting the motives of the dimensions and measured through actual frequency of use. Capabilities can be operationalized through items describing EM's motives and measured by the degree to which the motives appear to be attained. Organization performance can be operationalized through measures of perceived profitability, success, and competitiveness.

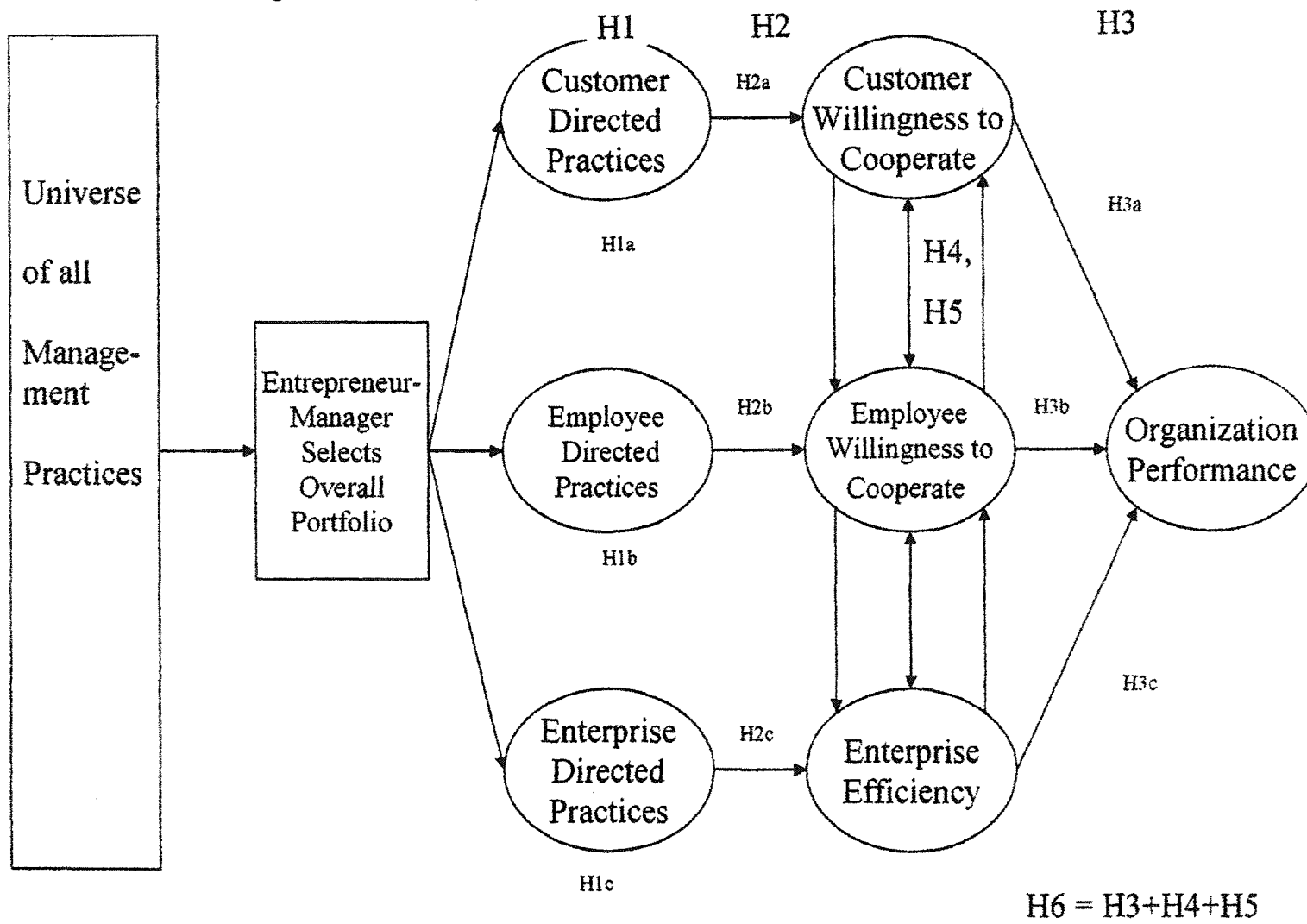
ITM also integrates decision-making among multiple functional areas. The Customer row involves sales and marketing, and quality management. The employee and supplier row involves Human Resources Management (HRM). The Enterprise row involves statistical process control, operations management, and production management. The EM dimension involves strategy, accounting, and finance.

### **Six Sets of Hypotheses**

The six sets of hypotheses set forth below describe the three portfolios and their three corresponding capabilities, and how they affect Organization Performance. Each of the paths specified in ITM represents a direct relationship between two variables, and one leg of an indirect relationship between one or more others. Figure 9 labels the paths with the applicable hypothesis and hypothesis set.

**Hypothesis 1: Three Discrete Practice Portfolios.** In the first step, EM selects practices from the universe of all business practices. As posited by Axioms 5 through 9 EM has specific, discrete motives for engagement with customers, employees and suppliers, and the enterprise; and they each have specific, discrete motives for engagement with EM. As explained above, practice portfolios represent the set of practices EM

Figure 9 An Integrated Testable Model With Hypotheses



chooses to employ to obtain what it seeks from each dimension. This provides the basis for the following set of four hypotheses:

Hypothesis 1: The overall portfolio of practices employed by an organization includes three discrete portfolios of practices.

Hypothesis 1a: One portfolio is directed toward the motives for engagement between the entrepreneur-manager and customers.

Hypothesis 1b: A second portfolio is directed toward the motives for engagement between the entrepreneur-manager and employees.

Hypothesis 1c: The third portfolio is directed toward the motives for engagement between the entrepreneur-manager and the enterprise the entrepreneur-manager manages.

For the remainder of this research, suppliers are dropped from the employee and supplier dimension. As is described in the next chapter, due to time constraints associated with accessing sample participants, the theory portion of this research was not completed prior to data collection. As a result, employee and supplier directed practice statements were not phrased to specifically include suppliers, and statements specifically directed at them were under-represented. Thus although including suppliers is consistent with the theory supporting ITM, suppliers were unfortunately not included in its testing.

**Hypothesis 2: Three Discrete, Independent Capabilities.** The next step introduces organization capabilities. As explained above, the result of employing each of the three practice portfolios is the attainment of three corresponding discrete capabilities

representing EM's ability to obtain what it seeks from customers, employees, or the enterprise. This provides the basis for the following set of four hypotheses:

*Hypothesis 2: The result of employing each of the three practice portfolios is three corresponding discrete capabilities.*

*Hypothesis 2a: The incidence of usage of practices in the portfolio of practices directed toward customers is positively associated with customer willingness to cooperate.*

*Hypothesis 2b: The incidence of usage of practices in the portfolio of practices directed toward employees is positively associated with employee willingness to cooperate.*

*Hypothesis 2c: The incidence of usage of practices in the portfolio of practices directed toward the enterprise the entrepreneur-manager manages is positively associated with enterprise efficiency.*

**Hypothesis 3: Direct Relationships Between Capabilities and Organization**

**Performance.** The third and final set of direct relationships in the model positions the three organization capabilities as determinants of organization performance. As posited by Axiom 1, organization performance results from the activity and interaction of customers, employees, and EM's. As posited in Axiom 3, EM is the focal dimension responsible for the organization's operations (i.e., the enterprise) and performance, defined in terms of profits and organization survival. The greater or stronger EM's ability to obtain what it seeks from customers, employees, and the enterprise; the greater organization

performance will be in terms of profitability and survival. This provides the basis for the following set of four hypotheses:

*Hypothesis 3: The strength of organization capabilities is positively associated with organization performance.*

*Hypothesis 3a: The strength of the organization's capability to obtain customer willingness to cooperate is positively associated with organization performance.*

*Hypothesis 3b: The strength of the organization's capability to obtain employee willingness to cooperate is positively associated with organization performance.*

*Hypothesis 3c: The strength of enterprise efficiency is positively associated with organization performance.*

**Hypothesis 4: Indirect Relationships Between Capabilities and Organization Performance.** As posited by Axiom 1, organization performance results from the activity and interaction of customers, employees, and EMs. This includes indirect or mediating relationships of one variable through another. These add on to organization performance and serve to enhance and magnify each capability's effect on organization performance. There are three indirect paths for each capability variable—two through one other variable and one through two variables.

*Hypothesis 4: Capabilities are positively associated with organization performance indirectly through one another.*

*Hypothesis 4a: The customer capability is positively associated with organization performance indirectly through the employee capability.*

*Hypothesis 4b: The customer capability is positively associated with organization performance indirectly through the enterprise capability.*

*Hypothesis 4c: The customer capability is positively associated with organization performance indirectly through employee, and enterprise capabilities.*

*Hypothesis 4d: The employee capability is positively associated with organization performance indirectly through the customer capability.*

*Hypothesis 4e. The employee capability is positively associated with organization performance indirectly through the enterprise capability.*

*Hypothesis 4f: The employee capability is positively associated with organization performance indirectly through the customer and enterprise capabilities.*

*Hypothesis 4g: The enterprise capability is positively associated with organization performance indirectly through the customer capability.*

*Hypothesis 4h: The enterprise capability is positively associated with organization performance indirectly through the employee capability.*

*Hypothesis 4i: The enterprise capability is positively associated with organization performance indirectly through the customer, and employee capabilities.*

**Hypothesis 5: Interactions among Capabilities Affect Organization**

**Performance.** Axiom 1 posits that organization performance results from activity *and* interaction among customers, employees, and EM. ITM thus indicates that the capabilities interact or act as moderators for one another. These interactions add on to organization performance and further enhance and magnify each capability's effect on organization performance. This provides the basis for three bi-lateral interaction effects and one tri-lateral interaction.

*Hypothesis 5: Bi-lateral and tri-lateral interactions exist between capabilities and are positively associated with organization performance.*

*Hypothesis 5a: The interaction of customer and employee capabilities is positively associated with organization performance.*

*Hypothesis 5b: The interaction of customer, and enterprise capabilities is positively associated with organization performance.*

*Hypothesis 5c: The interaction of employee, and enterprise capabilities is positively associated with organization performance.*

*Hypothesis 5d: The interaction of customer, employee, and enterprise capabilities is positively associated with organization performance.*

**Hypothesis 6: At Least A Medium Total Effect Size.** A criticism of the management literature is that when a link between action and organization performance is measured, effect size tends to be small as defined by Cohen (1992). Often these studies focus on the link between individual practices and aggregate business unit performance (Cummings, Mohrman, Mohrman, & Ledford, 1985; Meyer & O'Shaughnessy, 1993;

Terpstra & Rozell; Delaney & Huselid, 1996; Rogg, 1999; Rigby, 2001; Reppenning & Sterman, 2001; Schmidt, Shull, & Schmidt 2001; Whitener, 2001; Rogg & Simons, 2002). Measuring the link between multiple practices aggregated through portfolios and organization performance may explain more variance and thus yield larger effect sizes than for measures of single practices. This provides the basis for the final set of hypotheses.

*Hypothesis 6: The total effects (i.e., direct plus indirect plus interaction) of capabilities on organization performance will be at least of medium effect size as defined by Cohen (1992).*

*Hypothesis 6a: The total effect (i.e., direct plus indirect plus interaction) of customer willingness to cooperate on organization performance will be at least of medium effect size as defined by Cohen (1992).*

*Hypothesis 6b: The total effect (i.e., direct plus indirect plus interaction) of employee willingness to cooperate on organization performance will be at least of medium effect size as defined by Cohen (1992).*

*Hypothesis 6c: The total effect (i.e., direct plus indirect plus interaction) of enterprise efficiency on organization performance will be at least of medium effect size as defined by Cohen (1992).*

## **Chapter Summary**

This chapter proposes an organization model ITM that integrates cooperating and competing interests and process organization theories; describes how organization practices, decision-making, and activity and interactions within the organization affect its performance; and operationalizes each variable at the business unit, or profit center, level

so that the six sets of hypotheses proposed at the end of the chapter can be tested using systematic and empirical research methods. The five axioms that are set forth describe the motives for each dimension to engage with the organization, and complete the foundation for the remainder of this research. ITM is constructed by overlaying 2T3D onto a five component process model (5CPM), proposed in this chapter, that describes how decisions EMs make about which practices to employ are linked to organization performance. EM selects individual practices from the universe of practices available and constructs three practice portfolios to accomplish specific objectives. Through these practice portfolios organizations develop corresponding capabilities. These capabilities then directly affect organization performance. Practice portfolios and their corresponding capabilities are organization assets with intrinsic value that can increase over time as improvements are made, or deteriorate if maintenance is ignored. Because ITM is grounded in theory and research, it may have academic value. Because it relates to managers, it may have the potential to be useful in practice.

## Chapter 4

### RESEARCH METHODS

#### Introduction

The research design created to test the hypotheses identified at the end of Chapter 3 incorporates a four-step process. In the first step, I constructed an initial questionnaire of items that operationalize the seven variables (i.e., the three practice portfolios, the three capabilities, and Organization Performance) specified in ITM. This involved conducting extensive surveys of both the general and academic management literatures to identify management practice items that operationalize the three practice portfolios, developing practice items, incorporating them into a questionnaire, and completing the required preparations for distributing it. In the second step, I collected data and constructed a database to be analyzed in the third and fourth steps. In the third step I derived a final measurement model instrument comprised of those practice items that demonstrate both statistical coherence (reliability) with a specific practice portfolio and association with the corresponding capability (criterion-related validity). In the fourth step, I evaluated the six sets of hypotheses by analyzing responses to the final measurement model items using structural equation modeling and regression. This chapter focuses on the first three steps. Chapter 5 focuses on the fourth and final step.

The statistical analyses discussed in this chapter and the following chapter are extensive and involve several hundred pages of associated reports. In the interest of efficiency and reasonable length, the tables and figures included within the text pertain to

the key findings. For the reader who may find other or additional information interesting, all supporting statistical reports are available on CD upon request from the author.

### **Initial Questionnaire Development**

**Two Literature Surveys.** The purpose in constructing the questionnaire was to operationalize ITM's seven variables so that the six sets of hypotheses identified in Chapter 3 can be tested. The first and largest task in this first step is to identify management practices that operationalize the three practice portfolios. It is almost impossible to conduct an exhaustive search of the literature for management practices as there is virtually an infinite supply of writing on the subject, and exactly what constitutes a "practice" requires subjective judgment. To establish content validity, it is necessary to compile representative samples of practices from each of the three practice domains. Beginning September 2000, I conducted an extensive survey of both general and academic literatures for statements about practices that are employed by organizations, and associated with good or improved organization performance. Results of the general management literature survey are summarized in Table 1.

<b>Table 1</b>				
<b>Summary of the General Management Literature Survey:</b>				
<b>Number of Items and Years</b>				
<b>Resource Type</b>	<b>Articles</b>	<b>Vignettes</b>	<b>Practices</b>	<b>Date Range</b>
<b>Books</b>	20	60	209	1911-1998
<b>Popular Press</b>	140	151	278	1987-2001
<b>Practitioner Journals</b>	119	152	311	1988-2000
<b>Symposium Papers and Proceedings</b>	11	11	24	1994-2001
<b>Edited Volume Chapter</b>	63	73	224	1832-1999
<b>Secondary/Conceptual Research Journals</b>	41	46	90	1988-2000
<b>Total</b>	<b>394</b>	<b>493</b>	<b>1136</b>	<b>1832-2001</b>

The general management literature survey includes 394 works: 20 books (*e.g.*, *Reengineering the Corporation* (Hammer & Champy, 1993) and *Built to Last* (Collins & Porras, 1997)); 140 articles from the popular press (*e.g.*, *Investors Business Daily* and the *Wall Street Journal*); 119 articles from practitioner journals (*e.g.*, *Across the Board* and *Academy of Management Executive*), 11 papers from symposiums and proceedings (*e.g.*, Human Resources Planning Society Research Symposium and Industrial Relations Research Association); 63 chapters from edited volumes (*e.g.*, *Book of Management Wisdom* (Krass, 2000) and *Evolving Practices in Human Resource Management* (Kraut & Korman, 1999)); and 41 articles from conceptual or non-primary research journals (*e.g.*, *Academy of Management Review* and *Psychological Bulletin*). Vintage ranged from a 1832 essay written by Charles Babbage (2000) on the division of labor to 2001. This phase of the literature survey yielded 1136 practice statements.

To compile and organize the information collected, I created an Excel database consisting of ten columns. The first five include information such as an identification number for each entry, document name, citation, etc. The next three columns construct a vignette, based on psychology's antecedent-behavior-consequence structure, telling the story of that row's practice. Column headings are environment, action, and result. Next is the practice statement column, followed by one for comments.

I completed the general management literature survey May 2001. During June and July I wrote practice statements based on the vignettes. In some instances one vignette yielded more than one practice statement. The vignette and practice statement for item 1308 (Tyne, 2001) detailed below is an example of an entry in this database.

**Environment:** AdvancePCS is a pharmacy benefits management company.  
 Entrepreneurs value their clients. Clients want value and service.  
 To succeed, you have to do something better than someone else  
 and create value for the client.

**Action:** Halbert (Advance PCS's president) asks clients about what  
 Advance is doing that is valuable to the client, and how service can  
 be improved.

**Result:** Advance PCS has been enjoying an increase in stock price when  
 everyone else's has gone down.

**Practice statement:** Customers are regularly asked about their perceptions of  
 product/service value and how it can be improved.

During late August and early September 2001 I conducted a similar survey of seven empirical or primary research academic journals published during the 1990's. I chose this decade because it was current and includes a span of time sufficient to provide an array of practices, not just those that were "hot" at a moment in time. Results of this survey are summarized in Table 2.

<b>Journal</b>	<b>Years</b>	<b>Issues</b>	<b>Articles</b>	<b>Practices</b>	<b>Articles with Practices</b>
<b>Journal of Management</b>	odd	26	199	55	37
<b>Academy of Management Journal</b>	even	30	307	117	52
<b>Personnel Psychology</b>	odd	20	147	84	43
<b>Journal of Applied Psychology</b>	even	30	438	81	30
<b>Strategic Management Journal</b>	odd	53	301	61	35
<b>Journal of Marketing Research</b>	odd	20	203	35	20
<b>Journal of Marketing</b>	even	20	153	68	15
<b>Totals</b>	<b>10</b>	<b>199</b>	<b>1748</b>	<b>501</b>	<b>232</b>

I chose academic journals of empirical research from each of the three practice areas studied. *Journal of Management* and *Academy of Management Journal* generally focus on practices associated with management efficiency and effectiveness. *Personnel Psychology* and *Journal of Applied Psychology* focus on practices associated with

employees. *Journal of Marketing Research* and *Journal of Marketing* focus on practices directed toward customers. *Strategic Management Journal* focuses on management practices at a higher conceptual level. Although I reviewed the entire decade of the 1990's, for time efficiency I reviewed the odd-numbered years for half of the journals and the even-numbered years for the other half. In conducting the study, I copied the Table of Contents for each of the 199 issues and placed them in a three-ring binder. I then numbered the articles sequentially beginning with 1 for each journal set. To compile and organize the information collected in this survey, I created a seven column Excel spreadsheet. The first four columns include identification number for each practice, journal name, article citation, etc. The next column contains a practice statement, followed by columns for number of participants in the study and type of respondent (e.g., police officers, nurses). This phase of the literature survey yielded 501 practice statements from 232 different articles.

**Item Development.** The initial questionnaire includes 164 items: 137 practice items (independent variables), 12 items querying participants about their view of their organization, (dependent variables), and 15 demographic items—five items describing the subject's organization, and ten items describing the subject. To develop practice items from the overall total of 1637 practice statements, I first pasted each practice statement along with its identification number on a 3x5 index card. I then sorted the cards into three piles, one for each practice area. At this point in August 2001, my dissertation advisor joined me in reducing the number of practice statements. We sorted each pile into smaller piles of similar or duplicate practices and wrote composite statements for each pile. This

initial effort yielded 150 statements: 45 directed toward customers, 46 directed toward employees, and 59 directed toward enterprise operating efficiency. We met weekly to revise and refine the statements, for a total of seven iterations. The final draft of the initial questionnaire includes 137 practice items: 37 Customer Directed Practices items, 42 Employee Directed Practices items, and 58 Efficiency and Effectiveness Directed Practices items. A copy of the questionnaire is included in Appendix 5.

### **Questionnaire Completion and Preparations for Distribution**

The initial questionnaire was developed and the data were collected before theory, and data analysis methodology were completed. Putting the “cart before the horse” is certainly not the preferred sequence of events; but under the circumstances of this specific research, this was the best choice. In the fall of 1998 the American Management Association (AMA) offered my dissertation advisor access to its seminar participants for questionnaire research. As time passed, AMA management structure began to change: the organization underwent substantial downsizing including the closing of its practice areas, journals, and library. Work on the initial questionnaire was mostly completed by the end of August, 2001. When it became apparent that the dampening affect of the September 11, 2001 terrorism on the AMA’s course enrollment might be enduring—possibly threatening AMA’s survival—we decided to make every effort to canvass AMA participants as soon as possible. Otherwise, we feared we might lose the opportunity altogether. All efforts were then focused on completing the questionnaire, as described below, in order to distribute it beginning February, 2002. This provided a month’s “settling in” period before AMA’s peak spring season began in March.

During the process of completing the theory portion of this research, the Efficiency and Effectiveness Directed Practices section heading was changed to Enterprise Directed Practices. Capability names, which serve as section headings in the Your View of Your Organization section, also changed. The three Customer Satisfaction items measure the Customer Willingness to Cooperate capability. The three Employee Satisfaction items measure the Employee Willingness to Cooperate capability. The three Efficiency and Effectiveness items measure the Enterprise Efficiency capability.

In the introductory letter at the top of the initial questionnaire first page, participants were asked “to record the actual practices (not stated or printed policies, but what really happens).” The purpose of this statement was to encourage respondent frankness. Organization performance results from what customers and employees really experience and do, not what they *are supposed* to experience and do. The letter also instructs them to respond within the context of “the organization for which you currently work. If you work in a large, multi-division organization, focus on the business unit (branch, division, profit and loss center) where you work.” This statement is drawn from Rumelt’s work (1991) that indicates that differences in organization performance are driven by differences between business units rather than corporate parentage or industry. It also seeks to focus participants on those practices they should be most familiar with (i.e., those of the unit where they work).

Next, participants were instructed to choose from six possible answers when responding to the 137 practice statements, as follows:

### **MARKING INSTRUCTIONS**

Please respond to the items in the first three sections using the following scale:

- |                               |                                  |
|-------------------------------|----------------------------------|
| ① = Never or Almost Never     | ④ = Frequently                   |
| ② = Infrequently              | ⑤ = Always or Almost Always      |
| ③ = Occasionally or Sometimes | ☒ = Not Applicable or Don't Know |

If you are unsure please choose the response which best describes your organization.

The five-point Likert-type ordinal scale measures the frequency with which participants perceive a practice to be employed by their company. The questionnaire assumes that participants have the knowledge, experience, and ability to respond to all survey items accurately, and that all practices are similarly useful to all organizations. A sixth choice of “Not Applicable or Don't Know” was offered to accommodate participants who are not prepared to respond accurately to a specific practice (e.g., accountants may not be familiar with the customer directed practices their firm employs), or when a practice may not be employable within the subject's firm (e.g., privately held or not-for-profit firms may not offer stock option plans). The intent of this response choice was to differentiate between inability to answer and no response at all. These responses were ultimately included with unanswered items as missing in the data analysis anyway because the response choice was compound.

Nine of the 12 items used to measure the four dependent or outcome variables (i.e., the three capabilities and Organization Performance) were selected from measures already in use and available in the literature. Measures were chosen because they address

key elements of EM's motives of engagement with the dimension, as specified in Axioms 6, 8, and 9. For example, the three Customer Willingness to Cooperate measures (CS1, CS2, and CS3) ask about the level of customer satisfaction, likelihood of repeat purchasing among existing of customers, and likelihood of existing customers to recommend the organization to others:

CS1: How satisfied do you believe customers are with the organization?

CS2: In your judgment how likely are customers who have purchased once to purchase again?

CS3: How likely are customers to recommend the organization (or its products/services) to others?

These address EM's desire to "build a base of customers willing to cooperate with the organization over time to provide a recurring, predictable, profitable, and growing cash stream". These measures are drawn from the Xerox customer satisfaction survey (Heskett, Sasser & Schlesinger, 1997:82). The third measure is identified in Reichheld's research as the top-ranking question for correlation between survey response and actual behavior that leads to profitable growth (2003).

The first two measures for the Employee Willingness to Cooperate capability (ES1, ES2, and ES3) are drawn from the Mayflower Group core questions (Johnson, 1996:306-307). The third is drawn from Kraut (1975):

ES1: Considering everything, how satisfied are you with your job?

ES2: How would you rate the organization as a place to work for compared to other organizations?

ES3: If you have your way, how likely is it that you will be working for this organization five years from now?

The three Enterprise Efficiency (P1, P2, and P3) measures were developed specifically for this research:

EE1: Compared to other organizations, how efficient is the organization in utilizing its resources to produce products/services at low cost?

EE2: Compared to other organizations, how effective is the organization in producing high quality, reliable products/services in a timely manner?

EE3: Compared to other organizations, how adaptive is the organization to changes in the environment?

The three Organization Performance (PERF1, PERF2, and PERF3) measures were drawn from Kopelman (1998):

PERF1: Overall, how successful is the organization in accomplishing its mission and goals?

PERF2: Overall, how does the organization's performance compare to the performance of similar, or competitive, organizations?

PERF3: Overall, what percent of maximum potential performance is the organization now achieving?

The five organization and ten demographic questions are drawn from the AMA's own profile questionnaire and Kopelman (1998).

Each of the nine capabilities measures use a five-point Likert-type ordinal response scale. There are three response definitions. The first Customer Willingness to Cooperate

and the first Employee Willingness to Cooperate items use a Very Dissatisfied/Very Satisfied definition. The remaining two Customer Willingness to Cooperate and the third Employee Willingness to Cooperate items use a Very Unlikely/Very Likely definition. The second Employee Willingness to Cooperate and all three Enterprise Efficiency measures use a One of the Worst/One of the Best definition. There is no “Don’t Know or Not Applicable” response choice. The three Organization Performance items use a 10-point Likert-type ordinal scale with different definitions: Completely Unsuccessful/Completely Successful, One of the Worst/One of the Best, and 0% to 10% of Potential/About 100% of Potential. These also include a “Don’t Know/No Opinion” response choice.

In early October 2001 five Zicklin School of Business doctoral students participated in a pilot survey, and several Zicklin faculty provided invaluable input. The questionnaire was revised to incorporate their comments and completed in December 2001. I also wrote an Information Page to hand out with the questionnaire to prospective respondents. This is a required part of all research involving human subjects (see Appendix 6). On January 8, 2002 I completed the NIH Human Participant Protections Education for Research Teams training (see Appendix 7). On January 14, 2002 this research was judged to be exempt from CUNY’s Institutional Review Board’s review of research using human subjects under *45CFR46.101.b(2)* (see Appendix 8).

### **The Data**

**Data Collection.** The data to be analyzed in constructing the final questionnaire and testing the hypotheses were drawn from 1156 completed questionnaires: 1059 completed by participants of AMA seminars and 97 completed by participants in Certified

Financial Analyst® (CFA®) exam review courses run by the New York Society of Securities Analysts (NYSSA). From February 5, 2002 to May 18, 2002 I visited the AMA headquarters located at Broadway and 48<sup>th</sup> Street in Manhattan each week day to hand out questionnaires and collect completed ones. AMA conducts classes on the seventh and eighth floors. I set up a table in the eighth floor commons area where participants are likely to congregate during break periods. In addition to posters displayed around the table, I also fixed posters to coffee machines in other areas of the seventh and eighth floors (see Illustration 1 for a copy of the poster). As an inducement to spend the 30 or so minutes required to fill out the questionnaire, I offered individuals their choice of several remainder books published by AMACOM, AMA's publishing subsidiary, in exchange for a completed questionnaire.

I initially handed questionnaires to individuals milling around the commons area on break. As many of the participants didn't visit this area, I missed a large number of potential respondents. In addition, private groups also held conferences and seminars on the AMA premises. They were not always receptive to participating. Over time as I got to know the course leaders, I was invited into their classrooms as the class reconvened from lunch on the first day to give a quick commercial and pass out questionnaires to each participant. The course participants were very receptive to cooperating. Many were interested enough in the research to initiate conversations about it. Several participants asked for a fresh questionnaire copy to take back to the office. Over 50 requested a copy of the research results and provided me their mailing address. During the 16 weeks I

Illustration 1

# CONTRIBUTE TO RESEARCH



Hi. I'm Elizabeth Letzler, a doctoral student in the Ph.D. Program in Business at the Graduate Center of the City University of New York. My dissertation research studies various business practices used in organizations. The results of my study should help organizations select business practices that will enhance overall performance.

Would you kindly fill out my questionnaire? It's 8 pages and will take about 30 to 45 minutes to complete. I'm located in the 8th floor lounge area by the book store. In appreciation of your participation, I will offer you a choice of AMACOM books in exchange for a completed questionnaire.

THANK YOU!!!

8TH FLOOR

8TH FLOOR

# FREE BOOK!

distributed 2250 questionnaires and collected 1059 completed ones. This resulted in a response rate of 47.1%.

AMA is a membership-based not-for-profit association that has provided management development and educational services to individuals, companies and government agencies since 1923. It conducts seminars at five United States locations (New York City, Atlanta, Washington, D. C., San Francisco and Chicago), hotels and conference centers, and client corporations. It also offers e-learning programs, 150 self-study courses and publishes books through AMACOM. Course offerings include: communications, finance, HRM, and training, IT management, leadership, management, marketing, sales, and customer satisfaction, plant, manufacturing and facilities management, project management, and purchasing management. Courses target a wide swathe of the corporate hierarchy from administrative assistants and newly promoted managers to chief executives (for more information visit AMA's website at [www.amanet.org](http://www.amanet.org)). In 2002 it had 700,000 members and customers in the Americas, Europe, and Asia.

Questionnaire respondents came from all over the United States from Maine to California to Florida, plus Puerto Rico and Europe. They worked for a vast array of firms and at all levels, from accountants to scientists, engineers, chemists, real estate professionals, architects, and university staff. At the lowest level, I met two newly promoted shift supervisors for a paving stone manufacturer in Brewster, NY. I also met senior level executives, corporate lawyers, the controller of a major pharmaceutical company, and the assistant to the president of a Washington State nuclear power plant.

See Appendix 9 for a list of some of the companies questionnaire respondents worked for. According to AMA staff, about 30% of course participants attend at their own initiative. This includes small business people, individuals who are out-of-work and wish to improve or broaden their skills, and individuals who want a practical business education but are impatient with the traditional college or university pace.

AMA staff introduced me to NYSSA, which sublets space on the seventh and eleventh floors. NYSSA is a not-for-profit organization founded in 1937. Its purpose is to inform and educate investors, and to advance the level of competence among investment professionals (for more information visit NYSSA's website at [www.nyssa.org](http://www.nyssa.org)). NYSSA is a leading provider of CFA® exam review courses. The CFA® charter is an important credential in the financial industry, particularly for workers who wish to pursue a career as a stock broker, portfolio manager, investment advisor, or analyst. The CFA® exam is held every June. NYSSA offers four-month long weekly review classes each spring. Approximately 800 students were enrolled in the spring 2002 courses. NYSSA agreed to allow me to distribute and collect questionnaires before class and during the break for the three weeks of March 18, 2002 to April 6, 2002. I distributed approximately 475 questionnaires and received 97 completed ones for a response rate of 20.42%. This is lower than the AMA response rate, but under the circumstances is a good turnout. Classes were held weekday evenings and on Saturdays. Participants attended after having worked a full day (or week) and often brought supper along in a paper bag. They then sat through three hours of (mind-numbing) instruction on

securities rules, securities and options pricing models, etc. Thus they had far less free time or energy to contribute to research than did the AMA participants.

**Database Construction.** In July 2002 I constructed an Excel spreadsheet to create a database from the 164 questionnaire item responses on the 1156 completed questionnaires, and engaged a graduate student to input each questionnaire. The first row of the spreadsheet includes questionnaire section titles. The second row includes item numbers, one per column, identified directly below the section title. The scoring scale is indicated on the title row for each of the three practice portfolios and on the item number row for the other sections. Case data begins on the third row. Column A identifies the case number, which is also recorded in the top right hand corner of the questionnaire. The Customer Directed Practices section occupies columns B through AL. In between each section is a blank column. The Employee Directed Practices section occupies columns AN to CC. The Efficiency and Effectiveness Directed Practices section occupies columns CE to EJ. The Your View of Your Organization section occupies columns EL to EW. The About Your Organization section occupies columns EY to FD. Although there are only five items in this section, the second item includes two different questions and two responses, thus answers for this item are recorded in two columns. The About Yourself section occupies columns FF to FO. Column FQ includes questionnaire completion date and column FR includes course name. The completed database, named DATABASE1156, included 1158 rows and 174 columns, incorporating data from 1156 questionnaires on 164 items, plus two title rows, a column for the case number, and nine spacer columns.

Given the size of the database ( $164 \times 1156 = 189,584$  entries), input error was certain. Independent duplicate data entry and then comparison of the databases was not practical as entering each questionnaire once took about 134 hours (at seven minutes each). I searched for and corrected errors in three ways. First, I visually scanned the entire spreadsheet for blank cells, double-digit, and other entries not included in the response set. Second, I checked the first 25 questionnaires plus all those with case numbers ending in "0" item by item. I identified 16 errors in the first 25 questionnaires for an error rate of 0.39% and 28 errors in the 112 "0" questionnaires for an error rate of 0.1524%. Third, when creating the input files for the statistical analyses I scrutinized the data entries quite closely to make sure there were no blank cells, and that all entries were within the specified response scale.

**Final Measurement Model Development.** In this step, I used empirical evidence as a guide to reduce the 137 independent variable practice items in the initial questionnaire to 78, or 26 practice items per portfolio. Outcome and demographic section items were neither analyzed nor addressed (see CDfile-1 for descriptive statistics by practice portfolio). First, I eliminated items with a high incidence of missing data. Regardless of the merit of the practice involved, these items are poor measures. The lack of response is clear evidence that participants are either unable or unwilling to provide a response, or find the items irrelevant to their employer organizations. Within this analysis I also developed a protocol for treating missing data over the remainder of the research. Second, I eliminated the least reliable items, in terms of internal consistency from each portfolio by examining factor analysis and item-total correlation results. Third, I

eliminated items with the weakest criterion-related validity, or correlation to outcome, to result in final portfolios of 26 items each. The chapter concludes with a description of final portfolio characteristics and an analysis of difference in frequency of each practice item's use between high and low performing organizations.

**Missing Data.** There are two sources of missing data in the dataset: NA/DK and unanswered items left blank. While complete data on all cases is the ideal, it is not the reality with this dataset. Individuals from all levels and areas within organizations from a broad spectrum of industries were queried extensively about the practices their organizations employ. It is reasonable to conclude that some items might not apply to an individual organization or that an individual respondent might not know the extent of a practice's employment. In addition, inspecting questionnaires for completion upon submission was not feasible.

Although NA/DK is a questionnaire response choice, as discussed above, it is treated as missing as it includes two distinct answers. It would be inappropriate to code these responses either higher than "Always" (5), or lower than "Never" (1). Classifying

NA/DK answers as missing reduces the number of questionnaires available for analysis within practice portfolio domains by about half, and overall by about 70% (1 minus 362 divided by 1156), as indicated in Table 3.

<b>Questionnaire Section</b>	<b>No NA/DK</b>	<b>No Unanswered Items</b>	<b>Number of Complete Questionnaires</b>
<b>Customer Directed Practices</b>	526	1021	453
<b>Employee Directed Practices</b>	648	1026	568
<b>Enterprise Directed Practices</b>	534	979	443
<b>Outcome</b>	1041	1101	993
<b>Number of Complete Questionnaires</b>	362	819	245

Of the 1156 completed questionnaires, only 245 include responses on all 137 practice and 12 outcome items (NA/DK response is available only on the three Organization Performance outcome items). Discarding all 911 questionnaires with missing data on one or more items would discard a large amount of information. This might result in too small a sample to analyze properly the complete model and/or might introduce bias into parameter estimates (Switzer & Roth, 2002).

I considered four different methods for addressing missing data:

- Listwise deletion: all cases missing a value on any item are deleted from the sample. Although this reduces sample size considerably, and the idiosyncratic,

unmeasured characteristics of participants who completed all answers may bias parameter estimates; unintended systematic bias (e.g., restricted standard deviation) is not introduced through estimated substitute values.

- Pairwise deletion: all cases are included in all calculations except when a value is missing for a specific calculation. This maximizes sample size; but correlation and covariance tables become comprised of multiple datasets. This is inappropriate for factor and structural equation modeling analyses, for which correlation and covariance matrices are the base statistics.
- Case mean substitution: case mean is substituted for values missing on an item. This method presumes that all items similarly measure the same construct and that a case performs similarly on all items. The items within the practice portfolios are intended to represent a sampling of things organizations do to achieve the intended outcome. Thus this presumption may be valid for items and case scores within individual practice portfolio sections, but not between portfolios. Each outcome construct is measured by three items. Again, a score for one may be substitutable for another within a group, but not between groups. This method “can be quite effective producing average errors in the third decimal place for correlations” (Switzer & Roth, 2002:321).
- Item mean substitution: item mean is substituted for values missing on a case. This method presumes that all cases perform the same and at the item mean. This is inconsistent with the overall theme of this research, which posits that individual practices are employed with differing frequency between high and low performing

organizations. Item mean substitution could also bias or restrict individual item standard deviation.

Missing data can also be estimated through various ways of imputing substitute values, both manually and through software programs such as PRELIS 2; but these techniques are beyond the scope of this research and were not considered.

Given the dual requirements of the analyses in this and the next chapter of both maximum sample size-driven statistical power and minimum systematic bias in the dataset, I chose in the first screen to treat missing data as follows:

- First, I dropped the 10% of items with the highest incidence of NA/DK responses within a practice portfolio. This eliminates the least effective measures and increases sample size. Four items—28, 29, 30, and 31—were dropped from the Customer Directed Practices portfolio; four items—3, 29, 31, and 35—were dropped from the Employee Directed Practices portfolio, and six items—13, 27, 24, 42, 45, and 48—were dropped from the Enterprise Directed Practices portfolio.
- The remainder of the item reduction analysis was conducted using listwise deletion on the surviving 90% of items.
- Once the final questionnaire items were identified for each practice portfolio (see Appendix 10), I created two parallel datasets. The purpose is completeness as this research proposes no theory or hypotheses regarding whether and how the two methods for handling missing data might produce differing results, or which method is more desirable. In one dataset, I substituted case mean within each practice portfolio for missing data on cases missing three or fewer items within a

practice portfolio. In the other dataset I substituted item mean for missing data on cases missing three or fewer items within a practice portfolio. According to Cohen and Cohen (1983) 10% or less missing data is not considered large.

- No missing data substitutions were made on any of the 12 outcome measures. Even one item missing within an outcome set would mean one third of a case's information is missing for that set.
- All subsequent analyses were conducted using listwise deletion. Each case included in the analyses has 90 entries (78 practices and 12 outcome) and a maximum of nine (three per practice portfolio) substituted values.

**Reliability Analysis.** The purpose of this analysis is to answer two questions: “Do the items within each practice portfolio focus on the same thing?” and “To enhance and strengthen reliability, which items should be eliminated?” Factor analysis (maximum likelihood, no rotation) and item-total correlation results for all three practice portfolios indicate a high degree of coherence and reliability within each initial questionnaire (less the 10% eliminated above for high incidence of missing data) practice portfolio, as shown in Table 4 (see CDfile-2 for exploratory factor and reliability statistics by practice portfolio).

<b>Table 4</b> <b>Reliability Analysis by Practice Portfolio</b> <b>(Less 10% High Missing Data Items)</b>			
<b>Statistic (Item Count)</b>	<b>Customer Directed Practices (33)</b>	<b>Employee Directed Practices (38)</b>	<b>Enterprise Directed Practices (52)</b>
<b>Alpha</b>	.927	.949	.963
<b>Eigenvalue: 1st Factor</b>	10.682	13.661	18.648
<b>Eigenvalue: 2<sup>nd</sup> Factor</b>	1.873	2.177	1.999
<b>% Variance Explained</b>	30.702	34.571	34.735
<b>Loadings Range</b>	.157-.703	.361-.763	.289-.770
<b>Item-total Range</b>	.1705-.6604	.3698-.7150	.2918-.7019
<b>Item-outcome Range</b>	.038-.291	.187-.542	.207-.492
<b>Sample Size Listwise Deletion</b>	565	744	517

This second screen eliminates items that do not share a common theme with the others by dropping those with item-total correlation (with the item deleted from the total) less than .4, and items with larger loadings on the second factor than the first. Both analyses identify weak items. Items 2 and 35 were dropped from the Customer Directed Practices portfolio for low item-total correlations; and item 5 was dropped for both low item-total correlation and a high second factor loading. Items 13, 14, and 42 were dropped from the Employee Directed Practices portfolio for low item-total correlations; and item 15 was dropped for high second factor loadings. Item 17 was dropped for both low item-total correlation and a high second factor loading. Items 11, 12, and 21 were dropped from the Enterprise Directed Practices portfolio for low item-total correlations.

This screen does not eliminate items with a small discrepancy in loadings between the primary and secondary factors, an indication of poor discriminant validity. Within the construct of reliability in this research, coherence and reliability are important, but discriminant validity is not. Discriminant validity would be important in developing an instrument to measure Customer Directed Practices as distinct from Employee or Enterprise Directed Practices and would require identifying items with no overlap into the other portfolios. In this research practices operating through multiple portfolios is likely a good thing. It is efficient, parsimonious, and generates value through operating leverage and power.

**Validity Analysis.** This third and final screen eliminates items that are not well associated with outcome, or indicate weak criterion-related validity. Practice portfolio criterion-related validity is key to this research. The main point of the hypotheses and the message of the ITM model is that the practices organizations employ determine organization capabilities, which in turn determine overall organization performance. The average of the three outcome items corresponding to each practice portfolio functions as the outcome variable measure.

Items not significantly correlated ( $p < .01$ ) with the outcome variable, and those with the lowest correlation to outcome were eliminated until 26 items remained. Items 21, 25, and 32 were dropped from the Customer Directed Practices portfolio for non-significant correlations, and item 24 was dropped for low correlation. Items 9, 22, 23, 25, 27, 28, 38, and 41 were dropped from the Employee Directed Practices portfolio; and items 1, 2, 3, 8, 9, 14, 17, 22, 25, 29, 33, 35, 36, 38, 39, 46, 47, 49, 50, 51, 52, 56, and 58

were dropped from the Enterprise Directed Practices portfolio for low correlations with the outcome variable.

The final portfolios resulting from this item reduction process could include either equal or unequal numbers of items. Portfolios of equal size convey upon each practice an equivalent impact on the direct outcome of its portfolio and an equivalent indirect impact on organization performance. Portfolios of unequal size convey upon each practice a differing impact upon the direct outcome of its portfolio and a differing impact on organization performance. The investigation of whether and to what extent individual practices differ in impact on direct and indirect outcomes is not within the scope of this research. Thus I chose to impose on the item reduction analysis the constraint that the final portfolios include equal numbers of items.

My original intent was to construct portfolios of either 20 or 25 items each. This reduces the time required to complete the questionnaire to a manageable 20 minutes or so, and item-total scores would easily convert into 100 point scales. After I eliminated the three non-significant items from the Customer Directed Practices portfolio, 27 items remained. At that point I would have been willing to retain 27 items in each portfolio; but because of a tie for 27<sup>th</sup> and 28<sup>th</sup> place in the Enterprise Directed Practices portfolio, I dropped both items and final portfolio item size became 26.

**Final Portfolio Characteristics.** The three final portfolios of 26 items each (see Appendix 10 for listing) indicate continued strong reliability and increased criterion-related validity. The Customer Directed Practices portfolio appears to have a weaker connection to outcome than the other two, as shown in Table 5.

<b>Statistic</b>	<b>Customer Directed Practices</b>	<b>Employee Directed Practices</b>	<b>Enterprise Directed Practices</b>
<b>Alpha</b>	.9248	.9392	.944
<b>Eigenvalue: 1<sup>st</sup> Factor</b>	9.32	10.686	10.949
<b>Eigenvalue: 2<sup>nd</sup> Factor</b>	1.582	1.353	1.703
<b>% Variance Explained</b>	33.639	39.096	39.921
<b>Loadings Range</b>	.405-.700	.449-.774	.549-.716
<b>Item-total Range</b>	.4052-.6722	.4474-.7341	.5084-.6959
<b>Item-outcome Correlation Range</b>	.128-.291	.339-.542	.381-.492
<b>Listwise Deletion Sample Size</b>	665	851	715

All items in the final measurement model practice portfolios are significantly correlated with the outcome variable at  $p < .01$ . Comparing Tables 4 and 5, it is evident that minimum item-outcome correlation increases from .038 to .128 for Customer Directed Practices, .187 to .339 for Employee Directed Practices, and from .207 to .381 for Enterprise Directed Practices. Alpha is reduced insignificantly while percent variance explained by one factor increases by three to five percentage points per portfolio.

Eigenvalues<sup>8</sup> for the first factor remains high for each portfolio even though total variance (one Eigenvalue per item) decreases by 11 for Customer Directed Practices, 16 for Employee Directed Practices, and 32 for Enterprise Directed Practices. Factor loading range narrows considerably and no item loading on the first factor is less than .4. Listwise deletion sample size increases by 212 cases for Customer Directed Practices and 283 cases for Employee Directed Practices, and by 272 cases for Enterprise Directed Practices.

**Discriminant Analysis.** As stated above, this research posits that individual practices are employed with differing frequency between high and low performing organizations. After completing the case and item mean substitutions for missing data (three or fewer in a portfolio) I conducted a Discriminant Analysis (Cohen, Montague, Nathanson, & Swerdlik, 1988; Hopkins, Stanley, & Hopkins, 1990) to determine whether the 78 selected items are indeed employed with differing frequency between high and low performing cases. Outcome measure is total score (scale is 1 to 5 so minimum score is 3 and maximum score is 15) on the three direct outcome measures for each portfolio. There are four steps (repeated for each portfolio and both datasets) in this analysis:

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<sup>8</sup>

In factor analysis, variance is measured in Eigenvalue units. Each item included in the analysis is assumed to contribute one unit of variance to the total. A factor analysis of ten items would then have an Eigenvalue total of 10 (Hatcher, 1994).

1. Sort cases in ascending order by outcome score.
2. Divide the dataset into three tiers – low scorers, middle scorers, and high scorers. Hopkins, Stanley & Hopkins (1990) advise that the upper and lower tiers each include 21% to 33% of sample total.
3. Determine the percentage of cases for each item within each of the low scoring and high scoring tiers that have a 4 (frequently), 5 (always or almost always), or item estimate greater than 4 on the item.
4. Construct a difference score for each item by subtracting the low scoring tier percentage from the high scoring tier percentage.

There is a clear difference in practice employment between high scoring and low scoring cases for each dataset, as shown in Table 6.

<b>Table 6 Discriminant Analysis Results</b>						
<b>Level</b>	<b>Customer Directed Practices</b>		<b>Employee Directed Practices</b>		<b>Enterprise Directed Practices</b>	
	<b>CM</b>	<b>IM</b>	<b>CM</b>	<b>IM</b>	<b>CM</b>	<b>IM</b>
<b>High (Items &gt;.35)</b>	0	4	21	22	25	23
<b>Medium (Items &gt;.2 &amp; &lt;.35)</b>	18	18	5	4	1	3
<b>Low (Items &lt; .2)</b>	8	4	0	0	0	0
<b>Sample Size</b>	952		1106		1040	
Note: CM indicates the case mean substitution dataset. IM indicates the item mean substitution dataset.						

All difference scores are positive in both the case mean substitution and item mean substitution datasets, indicating the practices are used more often among high scoring than

low scoring cases. According to Hopkins, Stanley and Hopkins (1990) a difference score greater than .35 indicates a relatively high level of discriminant ability, and a score lower than .2 indicates a relatively low level of discriminant ability. Items in the Enterprise Directed Practices and Employee Directed Practices portfolios indicate strong discriminant ability. Items in the Customer Directed Practices portfolio appear to be weaker, with eight low level items and no high level ones.

### **Chapter Summary**

This chapter details three of the four steps in the research design created to test the hypotheses proposed at the end of Chapter 3. The first step involved developing an initial questionnaire of 137 practice statements, 12 outcome measures, and 15 demographic items. To accomplish this, I first conducted an extensive survey of both general and academic management literatures for statements about practices that are both employed by organizations and associated with good or improvement in organization performance. The 1637 resulting items were then consolidated, refined, and reduced. The second step, which yielded 1156 completed questionnaires, involved surveying AMA and NYSSA seminar participants and entering the data into an Excel spreadsheet database. In the third step I used statistical evidence as a guide to reduce the number of practice statements to 78, or 26 per portfolio. Items were eliminated for having a high incidence of missing data; having weak reliability, as indicated by low item-total correlation or a higher loading on the second factor than the first; or having poor criterion-related validity, as indicated by a low or non-significant correlation with outcome measure. Factor, reliability, and item-outcome correlation analyses on the three final portfolios indicate continued strong

reliability and increased criterion-related validity. Discriminant analysis indicates there is a clear difference in practice employment between high scoring and low scoring cases for each portfolio.

## Chapter 5

### RESULTS

#### Introduction

Do the data support the hypotheses? This chapter describes the statistical methods used to test the six sets of hypotheses proposed in Chapter 3 and evaluates the results against each claim. There are five sections. The first section describes the sample and is followed by an overview of structural equation modeling (SEM) basics. The third section analyzes the results of the measurement and hybrid models. Although the hypotheses to be tested flow clearly and logically from left to right, analyzing the variables and evaluating Hypotheses 1, 2, and 3 is not straightforward. These require multiple analyses each, and proper analysis of Hypothesis 1 requires the *prior* analysis of Hypotheses 2 and 3. This makes the sequential evaluation of each hypothesis impossible. Thus there is a fourth section that evaluates each hypothesis. The last section summarizes and concludes the chapter.

Results of the data analysis and hypothesis testing are summarized below:

- Hypotheses 1, 1a, 1b, and 1c: Mixed support.
- Hypotheses 2, 2a, 2b, and 2c: Support.
- Hypotheses 3, 3a, 3b, and 3c: Mixed support.
- Hypotheses 4, 4b, 4c, 4d, 4f, 4g, 4h, and 4i: Support.
- Hypotheses 4a and 4e: No support.
- Hypotheses 5, 5a, 5b, 5c, and 5d: No support.

- Hypotheses 6, 6a, and 6c: Support.
- Hypothesis 6b: Encouraging support.

Descriptive statistics including means, standard deviations, and Pearson intercorrelations, for the seven Integrated Testable Model (ITM) variables (three portfolios, three capabilities, and Organization Performance) are included in Table 7 below.

<b>Variable</b>	<b><math>\alpha</math></b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Pearson intercorrelations:								
1 Customer Directed Practices	.92							
2 Employee Directed Practices	.94	.62						
3 Enterprise Directed Practices	.94	.65	.84					
4 Customer Capability	.71	.29	.27	.24				
5 Employee Capability	.79	.39	.63	.56	.35			
6 Enterprise Efficiency Capability	.76	.51	.51	.62	.30	.51		
7 Organization Performance	.85	.51	.49	.54	.31	.48	.64	
Mean		98	90	84	12	11	10	21
Standard Deviation:		15	17	17	2	3	2	5
Note: Each variable shown includes case mean substitution score total for all its measures. Item mean substitution results are the same.								

Descriptive statistics for the six portfolio variables (case mean and item mean substitution for each of the three portfolios) and the 12 outcome measures (i.e., CS1, CS2, CS3, ES1,

ES2, ES3, EE1, EE2, EE3, PERF1, PERF2, and PERF3) are included in CDfile-3.

Missing data analysis is included in CDfile-4. All LISREL and regression results are completely standardized.

### **Sample Description**

The questionnaire asked respondents five questions about their organizations and ten questions about themselves. Complete results are included in CDfile-5. Although the sample base includes respondents from organizations of all sizes and types, it is more representative of large, for-profit organizations than others. Median annual sales are about \$500 million. Median United States-based work force exceeds 2,500. Median worksite employment is just under 1,000. Eighty percent of respondents work in the for-profit sector. Half of respondents work in manufacturing or banking, financial services, and real estate; 12% work in the not-for-profit and government sectors, and 10.8% work in healthcare services. Half work at corporate headquarters.

Respondents appear to be early and mid-career, upwardly mobile professionals. Two-thirds are between 30 and 50 years old. They are well educated, as 77% have earned a bachelor's degree or higher. They are building career experience as about two-thirds have worked for their employer between one and nine years, and 82% have held their current position four or fewer years. Over half of respondents earn between \$50,000 and \$99,000 per year, while 90% earn \$150,000 per year or less. Forty eight percent are male, 51% are female. Most common occupations are managerial/executive, technical/professional, and sales/marketing. The prevalence of these occupations is likely influenced by AMA's course offering selection. In addition to the typical courses on

managing people, the course on managing Information Technology professionals seemed to be extremely popular and was offered multiple times during my four months at AMA. Most common functional areas are finance, general management, and sales/marketing. Again, this may likely be a function of AMA's course offerings. In addition, almost all the 97 NYSSA CFA® review course participants work in finance. About half of all respondents directly manage people, while about half do not. Sixty-one percent work between three and five levels below the organization's Chief Executive Officer.

The above description is only a general characterization of the sample. It in no way exhausts the extent to which these data can be analyzed, understood, and learned from. Whether these respondents are representative of the potential sample universe is undeterminable, as no information is available describing the complete pool of course participants during the sampling period.

### **Structural Equation Model Basics**

Structural equation modeling (SEM) involves imposing the structure of an hypothesized model on sample data and then testing to determine whether the data are consistent with the model (Byrne, 1998). Models may include latent and effects indicator variables. Latent variables are theoretical constructs. Effects or reflective indicators are manifest or observed variables that serve as indicators or measures of latent variables. This "is based on the premise that the constructs signified by the latent variables produce behavior that is captured by the measures that constitute the manifest variables" (Williams, Edwards, & Vandenberg, 2003:905). There are three model types: measurement or factor models evaluate the goodness of fit between the measures defining a latent variable and

the sample data; path models evaluate direct and indirect causal relationships between variables; and hybrid models combine both measurement and path models. The measurement analysis is called Confirmatory Factor Analysis (CFA) as its purpose is to confirm the theory described by the model about the data. The measurement portion of a hybrid model must be analyzed first as the validity of the effects indicators to define and represent their latent variables is crucial to the validity of the path portion, i.e., defining the existence and extent of the relationships between and among the variables.

It is theoretically possible to calculate a unique estimate for each parameter only if the model to be analyzed is identified. Identification status is determined by the number of observations, number of parameters, and scale. The number of observations equals the number of entries in the covariance<sup>9</sup> matrix and is calculated by multiplying the number of effects indicators (observed variables) times the number of effects indicators plus one divided by two. Parameters include “[t]he total number of variances and covariances (i.e., unanalyzed associations) of the factors and of the measurement errors plus direct effects on the indicators from the factors (i.e., factor loadings)” (Kline, 1998:204). Models with more observations than parameters may be over-identified. Just-identified models have equal numbers of observations and parameters, and a unique solution that perfectly fits the data is theoretically possible. Under-identified models have more parameters than observations and some or all of the parameters are not uniquely estimable, regardless of sample size. Degrees of freedom are calculated as the difference between observations and parameters. Each factor must be scaled to either the factor variance or one of the

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<sup>9</sup> $Cov_{xy} = (r_{xy})(s_x)(s_y)$

factor indicators. CFA models with two or more factors are identified if there are more observations than parameters and there is a scale for every factor (Kline, 1998). Generally speaking, if a “model with two or more factors has at least two indicators per factor, then the model is identified” (Kline, 1998:205).

SEM models are either recursive or non-recursive. Recursive models include unidirectional arrows and no feedback loops. Non-recursive models include at least one bidirectional arrow or feedback loop. Recursive models can be solved using software like LISREL and CALIS (SAS) that use multiple regression. Non-recursive models are special cases and can be more difficult to analyze than recursive models (Kline, 1998). For example, imposing all of the indirect paths proposed by Hypothesis 4 at once changes ITM (see Figure 9) from a solvable recursive model to an unsolvable non-recursive one. In the analysis described on pages 153 to 159, indirect paths are added one at a time. First, the path that the *Practices* → *Capabilities* → *Performance* hybrid model modification index indicates has the greatest potential to reduce  $\text{Chi}^2$  is inserted into the model and the analysis is rerun. Next, the path with the highest modification index from those results is inserted and the analysis is rerun again. This process is repeated until the model becomes non-recursive and unsolvable, or no path reduces  $\text{Chi}^2$  by more than 3.84, the significance level for one degree of freedom ( $p < .05$ ) (Byrne, 1998). Attempting to test indirect paths by individual capability (i.e., three separate sets of analyses) may overestimate indirect effects because the coefficients of the indirect paths may be inflated by multicollinearity with the indirect paths from the other capabilities.

SEM results are sensitive to sample size. Complex models require larger sample sizes than simple models to achieve stable results. A desirable goal is 20 cases per parameter, although 10 cases per parameter is quite acceptable. If there are fewer than five cases per parameter the statistical stability of the results may be doubtful (Kline, 1998). Also, sample size must be large enough to provide the model sufficient power to detect a close or exact fit, if one exists (MacCallum, Browne, & Sugawara, 1996).

The six hypotheses are tested using LISREL 8.53. Output reports include both a model schematic and multiple pages of statistical results. The schematic provides path coefficients, factor loadings, covariances, errors,  $\chi^2$  and p-value, degrees of freedom, and Root Mean Square Error of Approximation (RMSEA). I add RMR, GFI, AGFI, NFI, NNFI and CFI (these statistics are explained on pages 100 and 101). I also calculate and include  $\chi^2$  per degree of freedom.

Within factor and SEM models, low and non-significant  $\chi^2$  values are desirable.  $\chi^2$  indicates the difference in fit between the model under investigation and a just-identified (i.e., no degrees of freedom) version of it. A significant  $\chi^2$  with, for example, 10 degrees of freedom indicates that the overall fit of the model is significantly worse than if it had 10 more paths. A non-significant  $\chi^2$  would indicate that the model under investigation does not differ statistically from a just-identified version, and with fewer paths is a better model.  $\chi^2$  is very sensitive to sample size and with large samples may indicate a significant result regardless of model configuration. Dividing  $\chi^2$  by degrees of freedom reduces its sensitivity to sample size. Generally, a ratio of three or less is considered desirable (Kline 1998).

Statistical results are presented in four sections. The first section lists all program input and parameter specifications. The second reports standard statistics beginning with factor loadings (Lambda matrix) and path coefficients (Beta and Gamma matrices) with standard errors and t-statistics. Positive loadings exceeding .70 are supportive of convergent validity as  $R^2$ , the proportion of indicator variance explained by the factor, equals the loading squared. A loading less than .70 would indicate that less than half of the indicator's variance is explained by the factor (Kline 1998).

Path (regression) coefficients are not interpreted in the same way as Pearson intercorrelations. "Correlations represent the unique contribution of each predictor and regression [path] coefficients represent the incremental contribution when combined with other predictors" (Johnson, 2001:232). Path coefficients are thus *corrected for correlation* between predictor variables (Kline 1998).

Standard errors should not be so large that the range of the confidence interval renders the loading meaningless. Standard errors should also not be so small that they are nearly zero, causing t-statistics to be nearly impossible to estimate (Diamantopoulos & Siguaw, 2000). T-statistics should be significant. Next comes the factor covariance matrix. The Phi matrix provides variances and covariances plus standard errors and t-statistics for the exogenous variables. The Psi matrix provides the variance plus standard error and t-statistic for the error terms associated with the latent variables. **Correlations** (i.e., standardized covariances) less than .85 are supportive of discriminant validity between factors. Next,  $R^2$  is provided for each latent endogenous variable.  $R^2$  should exceed .50. Last are error variances, plus standard errors and t-statistics, and  $R^2$  for the

observed variables. Observed variable error, or variance not explained by the model, equals  $1-R^2$  (Kline, 1998).

The third section includes a variety of Goodness of Fit statistics. This research will focus on seven statistics in evaluating the six hypotheses.

- Root Mean Square Error of Approximation (RMSEA): is generally regarded as one of the most informative fit indices and focuses on the discrepancy between the null model and the existing one per degree of freedom. Values less than 0.05 indicate good fit; values between 0.05 and 0.08 indicate reasonable fit; values between 0.08 and 0.10 indicate mediocre fit; and values exceeding 0.10 indicate poor fit (Diamantopoulos & Sigauw, 2000).
- Standardized Root Mean Square Residual (RMR): represents the average value of the residuals. Standardized values below 0.05 indicate good model fit.
- Goodness of Fit Index (GFI): indicates how closely the model comes to perfectly duplicating the observed covariance matrix. Values range between 0 and 1; .90 or better indicates acceptable fit.
- Adjusted Goodness of Fit Index (AGFI): adjusts the GFI for degrees of freedom; 0.90 or better indicates acceptable fit.
- Normed Fit Index (NFI): indicates the improvement of the model at hand over an independence model in which all variables are assumed to be uncorrelated; 0.90 or better indicates acceptable fit.
- Non-Normed Fit Index (NNFI): includes a correction for model complexity; 0.90 or better indicates acceptable fit.

- Comparative Fit Index (CFI): may be less sensitive to sample size and should be interpreted in the same way as NFI; 0.90 or better indicates acceptable fit.

The final section includes individually requested statistics such as modification indices, standardized solution (i.e., latent variables are standardized) and completely standardized solution (i.e., latent and observed variables are standardized), residuals, and indirect and total effects.

In the residual analysis, the fitted (model-implied) covariance matrix is constructed by imposing the model on the sample data. The fitted residual matrix consists of the difference between the sample covariance and fitted covariance matrices. Positive fitted residuals represent model underfitting as the magnitude of the covariance is underestimated. Negative fitted residuals represent overfitting as the magnitude of the covariance is overestimated. Standardized residuals are interpretable as z-scores, as they result from dividing the fitted residuals by their estimated standard errors. A standardized residual greater than 1.96 (or less than -1.96),  $p < .05$  is considered “large” and indicates poor fit (Diamantopoulos & Siguaaw, 2000). Non-significant residuals indicate good fit.

In determining effect size, standardized path coefficients are interpreted in the same way as correlations, using the guidelines established by Cohen (1992): coefficients with absolute values less than .10 are considered “small”, values around .30 are considered “medium”, and values exceeding .50 are considered “large”. These guidelines should be interpreted with some flexibility—standardized path coefficients of .49 and .51 are not necessarily qualitatively different from one another, although the guidelines define .49 as “medium” and .51 as “large” (Kline, 1998).

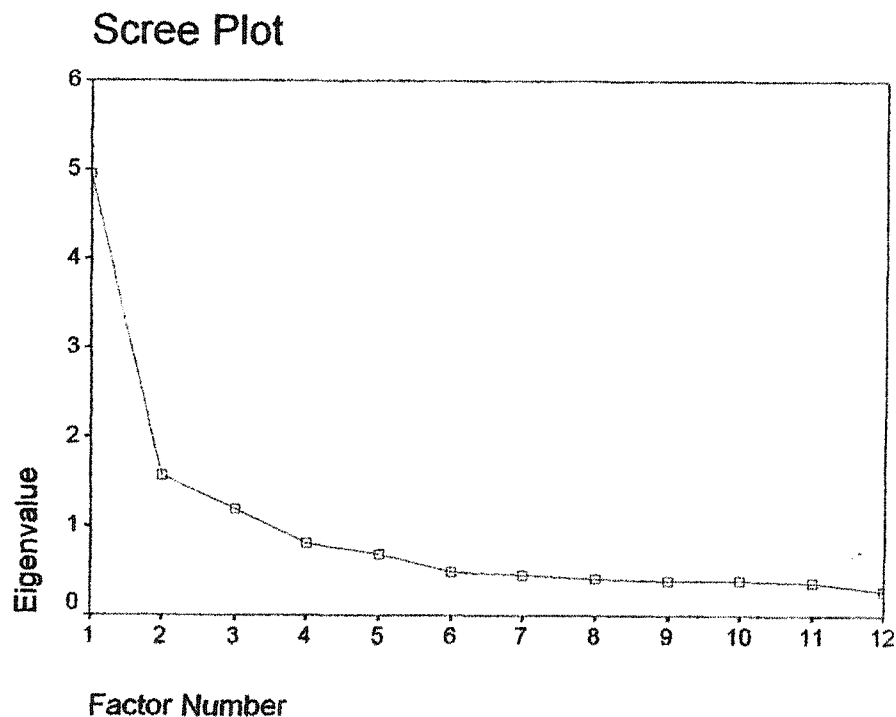
## Results

As stated in the above section, the measurement portion of an SEM model must be evaluated before the path structure can be imposed. In this research, the measurement portion of ITM includes four latent variables: Customer Capability, Employee Capability, Enterprise Efficiency Capability, and Organization Performance. Although at first blush the *Practices* → *Portfolio* segment of ITM (see Figure 8) may also appear to be a three factor measurement model, it is not. “A measurement model can be viewed as a structural model of presumed causal effects of latent variables on observed scores” (Kline, 1998:57). In measurement model diagrams latent variables can be either exogenous or endogenous; and arrows point from them to their indicators. Latent variables account for intercorrelations between indicators. Reflective effects indicators are always endogenous and subject to measurement error (MacCallum & Browne, 1993). When variation in the indicators produces variation in the latent variable instead, the arrows are reversed. In this instance the observed measures are referred to as causal or formative indicators. “Specifically, with formative indicators the latent variable is defined as a combination of its indicators (plus an error term); thus the latent variable becomes automatically endogenous while the indicators are exogenous with no error terms” (Diamantopoulos & Siguaaw, 2000:14, Williams, Edwards, & Vandenberg, 2003). The overall claim of ITM is that the practices managers employ contribute predictably and meaningfully to overall Organization Performance. Thus practices are exogenous, causal indicators of organization performance and the intervening variables. Evaluating the practices and

portfolios as a measurement model would yield results different from and possibly incompatible with the dataset (MacCallum & Browne, 1993).

**Capability → Performance Exploratory Factor Analysis.** To determine whether the 12 questionnaire items used to measure the three capabilities and Organization Performance indeed measure these four factors, I first conducted exploratory factor analyses (EFA) extracting one, two, three, and four factors using the Maximum Likelihood extraction method and Oblimin rotation<sup>10</sup> (see CDfile-6). The Scree plot (see Figure 10) supports four factors.

*Figure 10*



<sup>10</sup>

Oblique rotation allows the factors to correlate whereas Varimax rotation forces them to be independent.

Chi<sup>2</sup> analysis, detailed in Table 8, indicates that the four factor model is the only one that fits, as the one, two, and three factor models have significant Chi<sup>2</sup>.

<b>Table 8</b> <b>Exploratory Factor Analysis</b> <b>1, 2, 3, and 4 Factors Extracted</b>			
<b>Factors</b>	<b>Chi<sup>2</sup></b>	<b>df</b>	<b>Significance</b>
<b>1</b>	1270.302	54	.000
<b>2</b>	747.651	43	.000
<b>3</b>	219.595	33	.000
<b>4</b>	28.750	24	.230
N=993, listwise deletion			

Measures load as predicted on the four factors, as shown in Table 9.

<b>Measure</b>	<b>Organization Performance</b>	<b>Customer Capability</b>	<b>Employee Capability</b>	<b>Enterprise Efficiency</b>
<b>CS1</b>	.300	<b>.512</b>	.310	.278
<b>CS2</b>	.179	<b>.694</b>	.227	.170
<b>CS3</b>	.290	<b>.829</b>	.275	.271
<b>ES1</b>	.345	.320	<b>.766</b>	.327
<b>ES2</b>	.554	.354	<b>.757</b>	.587
<b>ES3</b>	.397	.261	<b>.745</b>	.479
<b>EE1</b>	.501	.242	.353	<b>.688</b>
<b>EE2</b>	.591	.308	.379	<b>.743</b>
<b>EE3</b>	.568	.217	.488	<b>.742</b>
<b>PERF1</b>	<b>.851</b>	.272	.415	.597
<b>PERF2</b>	<b>.851</b>	.330	.389	.625
<b>PERF3</b>	<b>.732</b>	.247	.405	.593

The three Organization Performance measures (PERF1, PERF2, and PERF3) load as predicted on factor 1. The three Customer capability measures (CS1, CS2, and CS3) load as predicted on factor 2. The three Employee capability measures (ES1, ES2, and ES3) load as predicted on factor 3. The three Enterprise Efficiency capability measures (EE1, EE2, and EE3) load as predicted on factor 4. For each factor, loadings for the predicted measures are highest for that factor (columns) and exceed the secondary factor loadings (rows) by at least .1.

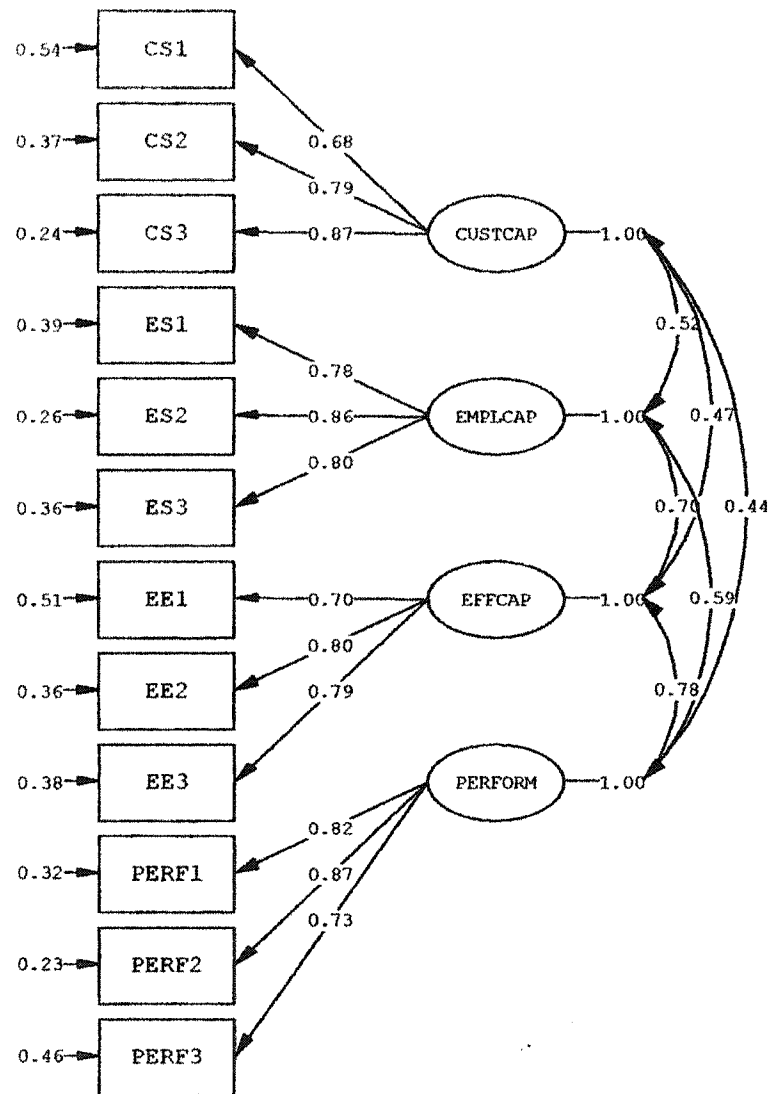
*Capability → Performance Confirmatory Factor Analysis.* To confirm the findings of the exploratory factor analyses, I next conducted a confirmatory factor analysis (CFA) on these 12 measures. This is a SEM procedure and the four factors comprise a measurement model, as described in Exhibit 1.

<b>Exhibit 1</b>			
<b><i>Capability → Performance Measurement Model Characteristics</i></b>			
Observations	78	Recursive?	Yes
Parameters	30	Cases/parameter	33.1
Degrees of freedom	48	Power	.99

The 12 observed measures yield 78 observations (12 times 13 divided by 2) and 30 parameters to be estimated: 12 factor loadings, 12 variances for measurement error, and six covariances among the four factors. This leaves 48 degrees of freedom. The model is recursive and thus solvable using LISREL. Sample size is sufficient to produce a stable result, and power is sufficient to detect a close or exact fit, if one exists, at the  $\alpha = .05$  level.

CFA results depicted in Figure 11 (statistical output is included in CDfile-7) indicate strong relationships between the factors and their indicators. All factor loadings exceed .70 except for CS1, which is .68. Loadings are generally slightly larger than those in the EFA above, except for CS1, which is .512 in the EFA and .68 in the CFA, and CS2, which is .694 in the EFA and .79 in the CFA. Covariances indicate moderate discriminant validity among the four factors, as all are less than .85 and range from .44 to .78. Error

Figure 11  
Confirmatory Factor Analysis



$\chi^2=292.50$ ,  $df=48$ ,  $P\text{-value}=0.0000$ ,  $RMSEA=0.072$

$\chi^2/df=6.09$ ,  $NFI=.98$ ,  $NNFI=.97$ ,  $CFI=0.98$ ,  $RMR=0.24$ ,  $GFI=0.95$ ,  $AGFI=0.92$

variances for the 12 observed variables range from .23 to .54. For ten of the 12 observed variables at least half of the variance is explained by the factor. For the other two variables, error only slightly exceeds .50 at .54 (CS1) and .51 (EE1).

Overall, fit statistics indicate mixed support for the hypothesized model. All five goodness of fit indices (GFI of .95, AGFI of .92, NFI of .98, NNFI of .97, and CFI of .98) exceed .90, indicating good fit. Standardized residuals range from -7.00 to 8.87 with only 29% significant at  $p < .05$ . Standardized RMR, indicates a good fit at .042. RMSEA of .072 indicates mediocre fit. Significant  $\chi^2$  of 292.50 and  $\chi^2$  per degree of freedom of 6.09 indicate poor model fit.

**Capability → Performance Hybrid Model.** The measurement model is transformed into a hybrid model by imposing a path structure of three directional relationships, one from each of the capabilities, into Organization Performance. The three capabilities are exogenous; Organization Performance and the 12 observed variables are endogenous. Model characteristics are described in Exhibit 2.

<b>Exhibit 2</b>			
<b><i>Capabilities → Performance Hybrid Model Characteristics</i></b>			
Observations	78	Recursive?	Yes
Parameters	30	Cases/parameter	33.1
Degrees of freedom	48	Power	.99

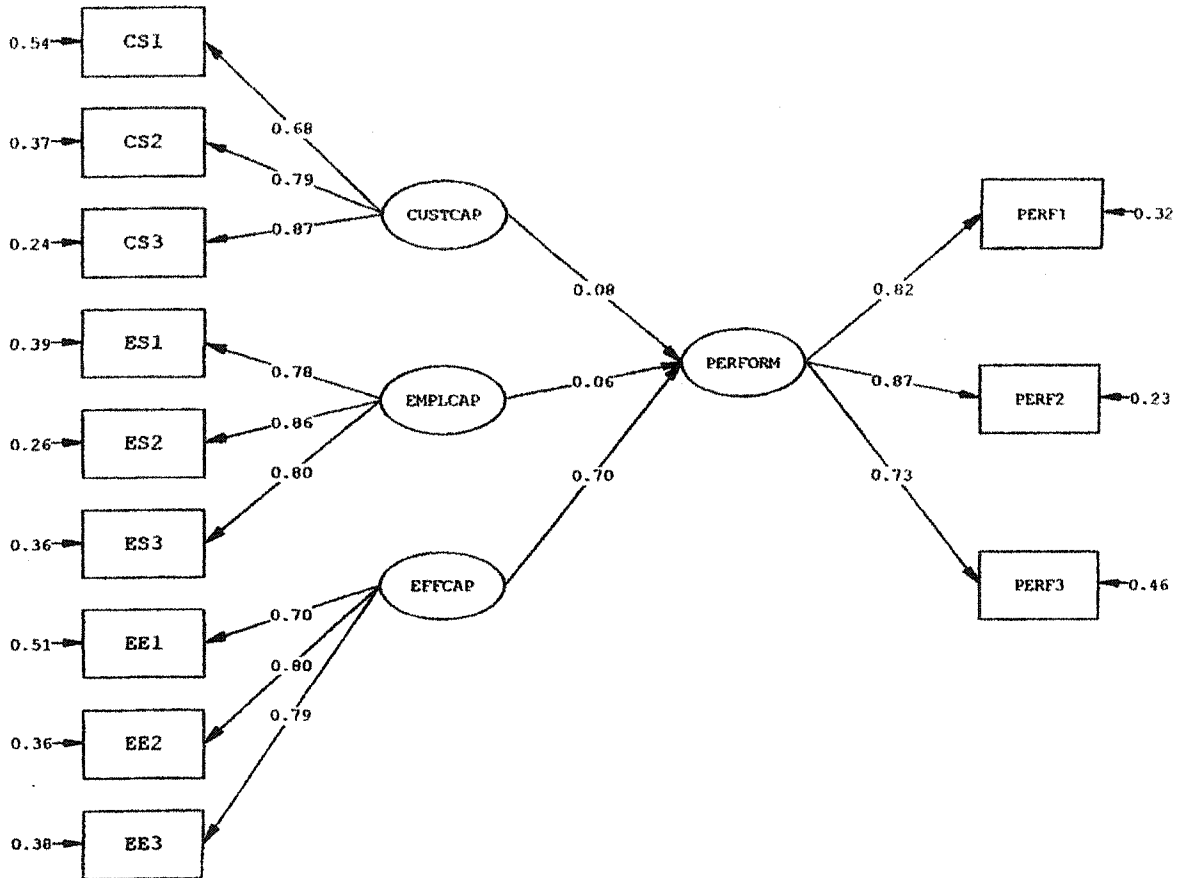
As this model uses the same 12 measures analyzed in the CFA measurement model above, there are there are also 78 observations. Although the hybrid model has the same number of parameters as the measurement model, the parameters are different. They include: 12 variances for measurement error, four factor variances, three covariances,

three direct effects, and eight factor loadings. Setting the loading equal to one for the measures that best describe each factor scales the factor. These are called reference measures (Diamantopoulos & Siguaaw, 2000). The model is recursive and over-identified with 48 degrees of freedom. Sample size is large enough to produce a stable result. The model has sufficient power to detect a close or exact fit, if one exists, at the  $\alpha = .05$  level.

Overall, hybrid model results, depicted in Figure 12 (statistical output is included in CDfile-8), also provide mixed support for the hypothesized model. Organization Performance  $R^2$  is .62, a large effect size ( $r = .79$ ). The Enterprise Efficiency Capability  $\rightarrow$  Organization Performance path coefficient of .70 appears to dominate the other two and is significant at  $p < .05$ . The Customer Capability  $\rightarrow$  Organization Performance path coefficient of .08 is significant at  $p < .05$ . The Employee Capability  $\rightarrow$  Organization Performance coefficient of .06 is not significant at  $p < .05$ . These path coefficients are lower than the capability  $\leftrightarrow$  Organization Performance simple correlations in the CFA model above because, as standardized regression beta weights, they quantify the partial rather than the total relationship. Factor loadings, errors,  $\chi^2$ ,  $\chi^2$  per degree of freedom, RMSEA, fit indices, and standardized residuals are unchanged from the measurement model.

**Practices' Direct Effects on Capabilities, and Indirect Effects on Organization Performance: The *Practices*  $\rightarrow$  *Capabilities*  $\rightarrow$  *Performance* Hybrid Model.** This model introduces the three practice portfolios. Case score total on each portfolio is the statistic used in this research to measure each case on each portfolio. As discussed in the measurement model section above, the 78 practices that comprise the

Figure 12  
Four Factor Hybrid Model



$\chi^2=292.50$ ,  $df=48$ ,  $P\text{-value}=0.00000$ ,  $RMSEA=0.072$ ,  $R^2=.62$

$\chi^2/df=6.09$ ,  $NFI=0.98$ ,  $NNFI=0.98$ ,  $CFI=0.98$ ,  $RMR=0.24$ ,  $GFI=0.95$ ,  $AGFI=0.92$

three practice portfolios are not effects indicators and thus do not compose a measurement model. Including each practice item as an exogenous variable would cause the model to be under-identified and non-solvable as SEM assumes there are covariances, which must be estimated, between all exogenous variables. “[T]he causal model in isolation is statistically under-identified. Only when imbedded in a causal model that includes consequences of the latent construct can the causal indicator model be estimated” (Bollen & Lennox, 1991:312). According to Diamantopoulos and Sigauw, when indicators are exogenous variables, their latent variable is “defined as a combination of its indicators” (2000:14). As discussed in Chapter 4, practice portfolio items were selected for their reliability and internal consistency, and correlation with outcome variable. Reliability among the 26 items within each final practice portfolio exceeds .90.

Each model involving the practice portfolios is analyzed twice, using two parallel datasets. In one dataset case mean is substituted for missing items in cases where three or fewer items within a practice portfolio are missing data. In the other dataset, item mean is substituted. In all analyses using these datasets, cases continuing to include missing data (i.e., had four or more missing items to begin with) are eliminated using listwise deletion. I constructed six new variables for case practice score total: one for each practice portfolio in the case mean substitution dataset, and one for each practice portfolio in the item mean substitution dataset.

This analysis presumes that both datasets yields similar results, as the maximum number of items substituted on a case is 10% (three items per portfolio out of 90 total items). As noted in Table 7 comparison of descriptive statistics for both datasets indicates

this is the case. For efficiency and clarity, I focus this discussion on results from the case mean dataset. Although neither dataset is necessarily preferable to the other, I chose case mean as it assumes that a case performs similarly across practice items in a portfolio. The item mean dataset assumes that the practices themselves largely determine usage patterns within organizations. Item mean results are reported when they differ from case mean results. Case mean statistical results are included in CDfile-CM. Item mean schematic, and item mean statistical results are included in CDfile-IM.

Characteristics of the *Practices* → *Capabilities* → *Performance* hybrid model are shown in Exhibit 3.

<b>Exhibit 3</b>			
<b><i>Practices</i> → <i>Capabilities</i> → <i>Performance</i> Hybrid Model Characteristics</b>			
Observations	120	Recursive?	Yes
Parameters	36	Cases/parameter	24.3
Degrees of Freedom	84	Power	.99

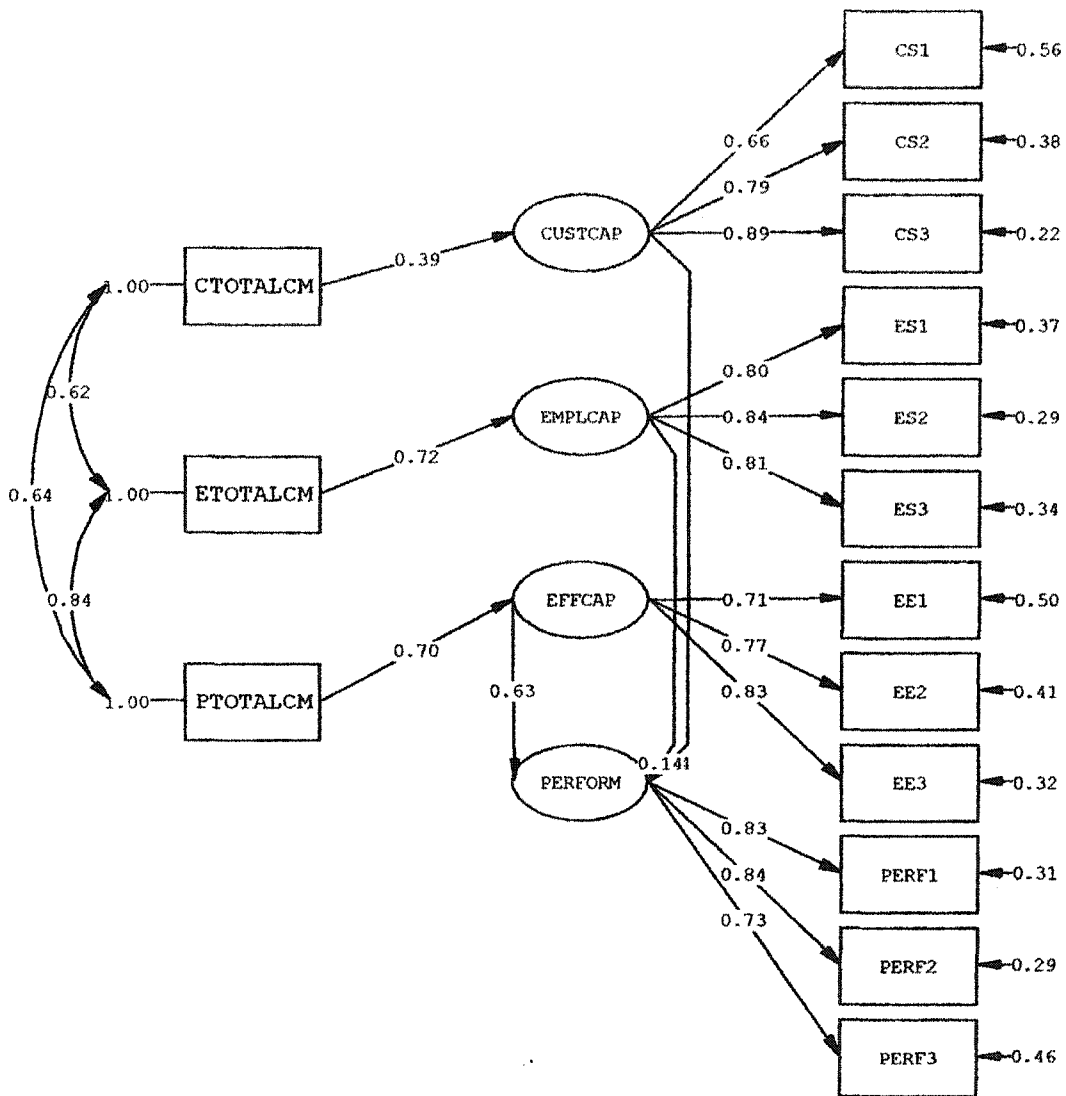
The model has four factors and 15 observed measures. There are 120 (15 times 16 divided by 2) observations and 36 parameters: 12 variances for measurement error, four factor variances, three covariances, three disturbances, six direct effects, and eight factor loadings (one loading per factor is set to one to scale the factor). It is recursive and over-identified with 84 degrees of freedom. Incorporating the three practice portfolios reduces overall sample size to 801. This is sufficient to yield more than 20 cases per parameter and provide a stable result. Power is sufficient to detect an exact fit, if one exists, at the  $\alpha = .05$  level.

Case mean results are depicted in Figure 13 (statistical output is included in CDfile-9). Compared to the *Capabilities* → *Performance* hybrid model, two path relationships are strengthened, but model fit is worse.  $R^2$  of .55 ( $r = .74$ ) is reduced from .62 but it is still a large effect size. All path coefficients are significant at  $p < .05$ . The Customer Directed Practices Portfolio → Customer Capability path of .39 is a little more than half as large as the Employee Directed Practices Portfolio → Employee Capability path of .72 and the Enterprise Directed Practices Portfolio → Enterprise Efficiency Capability path of .70. The Customer Capability → Organization Performance path coefficient increases from .08 to .14 and the Employee Capability → Organization Performance coefficient increases from .06 to .14. The Enterprise Efficiency Capability → Organization Performance coefficient appears to decrease from .70 to .63. Indirect effect on Organization Performance of the Customer Directed Practices portfolio is .0546 (.39 x .14), of the Employee Directed Practices portfolio is .1015 (.72 x .141), and of the Enterprise Directed Practices portfolio is .441 (.70 x .63). Covariance between the Employee Directed Practices portfolio and Enterprise Directed Practices portfolio is .84, just under the .85 standard for assuming two variables to be different.

$\chi^2$  indicates poor model fit, as it is significant and triple that of the measurement model.  $\chi^2$  per degree of freedom of 11.08 is almost double that of the measurement model. RMSEA of .11 indicates poor fit. NFI of .94, NNFI of .93, and CFI of .94 are less than for *Capabilities* → *Performance*, but exceed .90. GFI of .87 and AGFI of .81 are both lower than for *Capabilities* → *Performance* and below .90. Standardized RMR

Figure 13

*Practices → Capabilities → Performance Hybrid Model*



$\chi^2=930.97$ ,  $df=84$ ,  $P\text{-value}=0.00000$ ,  $RMSEA=0.112$ ,  $R^2=.55$

$\chi^2/df=11.08$ ,  $NFI=0.94$ ,  $NNFI=0.93$ ,  $CFI=0.94$ ,  $RMR=0.12$ ,  $GFI=0.87$ ,  $AGFI=0.81$

of .12 substantially exceeds the .05 standard. Standardized residuals range from -13.23 to 12.10 with 62% significant at  $p < .05$ .

**Do Capabilities Mediate the Relationship Between Portfolios and Organization Performance?** Capabilities are positioned in ITM as mediators between the portfolios and Organization Performance. There are no hypothesized direct relationships between the portfolios and Organization Performance. Capabilities add value to the model by enhancing the relationships between practice portfolios and Performance. If they do not, then the objective of parsimony within the model would require their removal.

I tested the role of the capabilities as mediators by deleting capabilities from the *Practices → Capabilities → Performance* hybrid model and analyzing the direct relationships between the three practice portfolios and Organization Performance. Model characteristics are described in Exhibit 4.

<b>Exhibit 4</b>			
<b>Capabilities as Mediators Model Characteristics</b>			
Observations	21	Recursive?	Yes
Parameters	15	Cases/parameter	53.4
Degrees of Freedom	6	Power	.45

There are six observed variables and 21 (6 times 7 divided by 2) observations. The 15 parameters include: two factor loadings, three path coefficients, three error variances, six covariances, and one factor variance. The model is recursive with six degrees of freedom. Sample size is sufficiently large to produce a stable result. The model has limited power to detect an exact fit, if one exists at the  $\alpha = .05$  level.

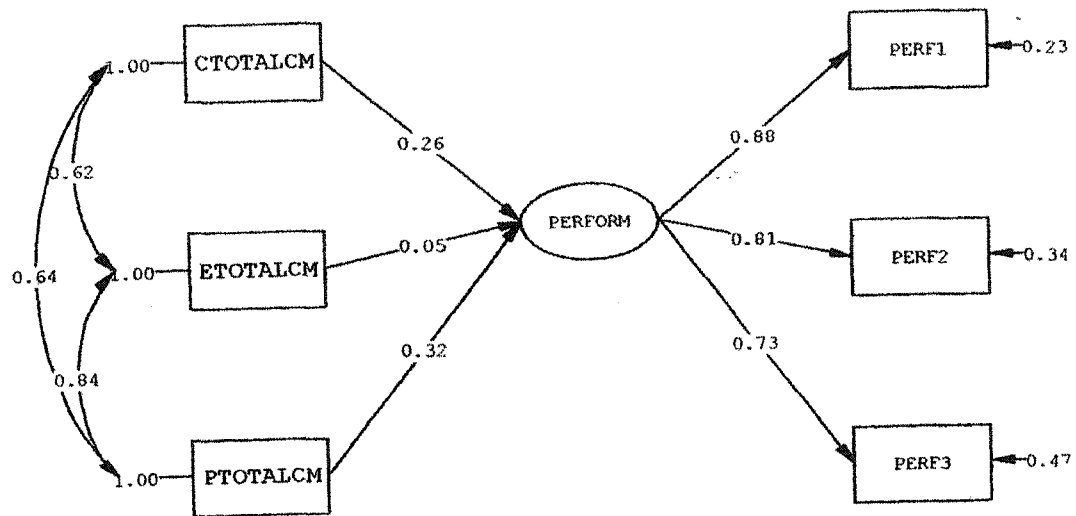
Case mean results are depicted in Figure 14 (statistical output is included in CDfile-10). Results provide mixed support for the hypothesized role of at least two capabilities as mediators.  $R^2$  drops from .55 to .35 in the unmediated model. Unmediated and mediated path relationships for each practice portfolio are included in Table 10.

<b>Portfolio \ Path</b>	<b>Unmediated Direct Port→Perf</b>	<b>Mediated Direct Port→Cap</b>	<b>Mediated Direct Cap→Perf</b>	<b>Mediated Indirect Port→Perf</b>
<b>Customer</b>	.26	.39	.141	.0546
<b>Employee</b>	.05	.72	.141	.1015
<b>Enterprise</b>	.32	.70	.63	.441

Unmediated direct path coefficients are smaller than the mediated direct paths and indirect path relationships for both Employee Directed Practices Portfolio and Enterprise Directed Practices Portfolio. That the Customer Directed Practices Portfolio unmediated direct path coefficient of .26 is much larger than the .141 mediated Customer Capability → Organization Performance direct path and the 0.0546 mediated indirect path relationship indicates that Customer Capability may not be helpful in explaining the relationship between Customer Directed Practices Portfolio and Organization Performance, that its three measures (CS1, CS2, and CS3) are poor, or that the respondents (management level employees) are good proxies for customers.

Figure 14

Do Capabilities Mediate Portfolios and Performance?



$\chi^2=208.18$ ,  $df=6$ ,  $P\text{-value}=0.00000$ ,  $RMSEA=0.205$ ,  $R^2=.35$

$\chi^2/df=34.7$ ,  $NFI=0.92$ ,  $NNFI=0.80$ ,  $CFI=0.92$ ,  $RMR=0.78$ ,  $GFI=0.92$ ,  $AGFI=0.72$

Removing capabilities appears to result in substantially deteriorated model fit.  $\chi^2$  per degree of freedom increases from 11.08 to 34.7. RMSEA increases from .112 to .205. All fit statistics are worse than in the mediated model except that RMR decreases from .12 to .078 and GFI increases from .87 to .92. Residuals indicate poor fit, as they range from -13.78 to 8.32 with 100% significant at  $p < .05$ .

**Do Portfolios Correspond to the Hypothesized Capabilities?** I tested the hypothesized pairing of portfolios and capabilities by adding directional paths from each portfolio to the other two capabilities. Model characteristics are described in Exhibit 5.

<b>Exhibit 5</b>			
<b>Do Portfolios Correspond to Hypothesized Capabilities? Model Characteristics</b>			
Observations	120	Recursive?	Yes
Parameters	42	Cases/parameter	19.1
Degrees of Freedom	78	Power	.99

The model has four factors and 15 observed measures. There are 120 (15 times 16 divided by 2) observations and 42 parameters: 12 variances for measurement error, four factor variances, six covariances, 12 direct effects, and eight factor loadings. It is recursive and over-identified with 78 degrees of freedom. Sample size is sufficient to provide a stable result. Power is sufficient to detect an exact fit, if one exists, at the  $\alpha = .05$  level.

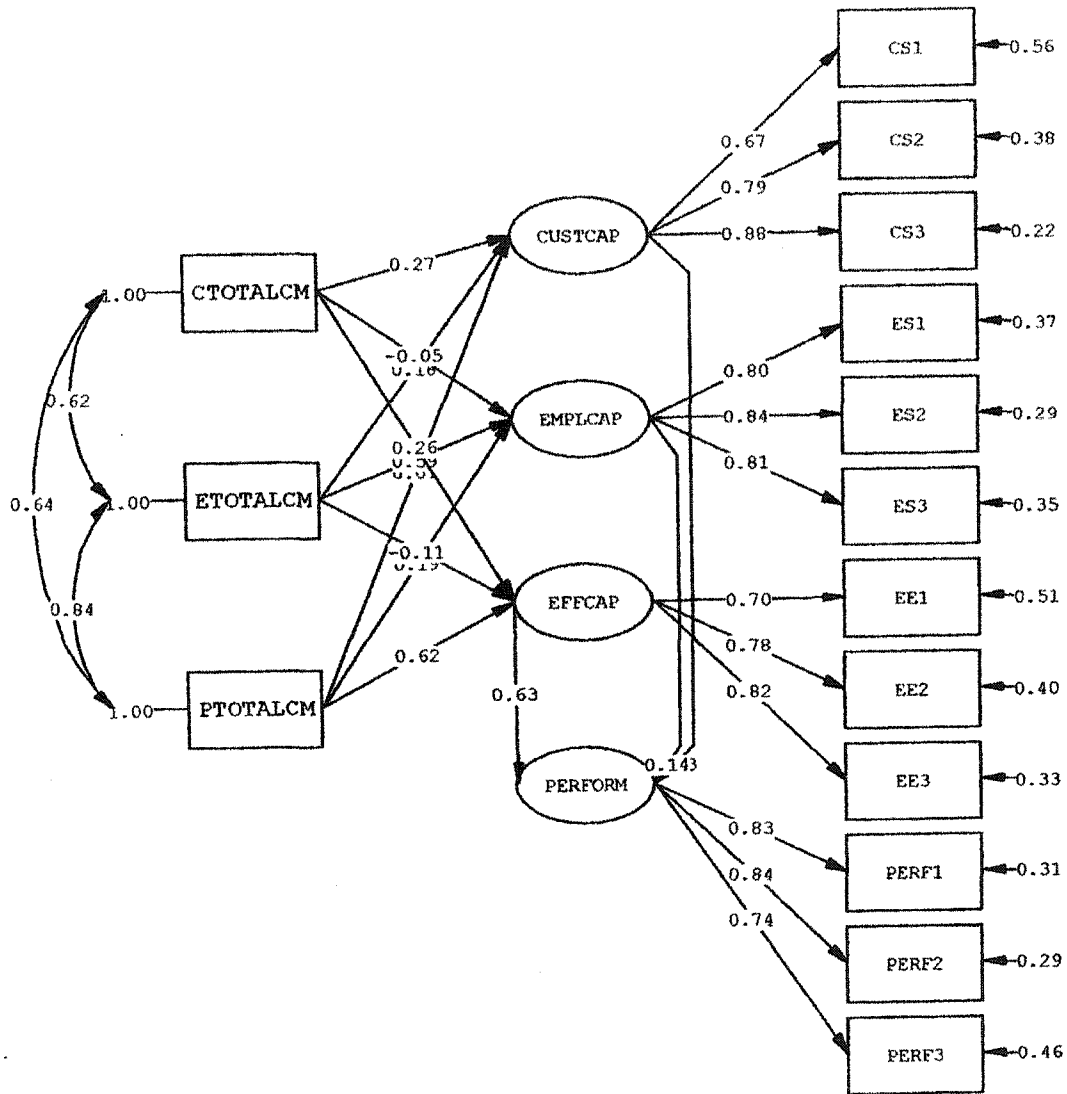
Case mean results are depicted in Figure 15 (statistical output is included in CDfile-11). Portfolio → capability path coefficients are summarized below in Table 11.

Portfolio \ Capability	Customer	Employee	Enterprise Efficiency
<b>Customer Directed Practices</b>	.27	-.05	.26
<b>Employee Directed Practices</b>	.18	.59	-.11
<b>Enterprise Directed Practices</b>	.01	.19	.62

The analysis provides no evidence to reject the hypothesized primary portfolio → capability pairing.  $R^2$  is .57, minimally higher than that of the .55 of the hypothesized model. Secondary path coefficients for both Employee Directed Practices Portfolio and Enterprise Directed Practices Portfolio are substantially smaller than those of their primary path coefficients. Customer Directed Practices Portfolio appears to have a valid secondary relationship with the Enterprise Efficiency Capability as that path coefficient of .26 is virtually the same as, but not larger than, the primary coefficient of .27.

Figure 15

Primary and Secondary Paths from Portfolios to Capabilities



$\chi^2=924.24$ ,  $df=78$ ,  $P\text{-value}=0.00000$ ,  $RMSEA=0.116$ ,  $R^2=.57$

$\chi^2/df=11.85$ ,  $NFI=0.94$ ,  $NNFI=0.92$ ,  $CFI=0.94$ ,  $RMR=0.095$ ,  $GFI=0.87$ ,  $AGFI=0.79$

Including the secondary paths does not appear to improve model fit. Thus the objective of parsimony would warrant their removal. Fit statistics are nearly the same as in the hypothesized model. RMSEA is increases slightly from .112 to .116. NFI, NNFI and CFI are unchanged and exceed .90. GFI of .87 is unchanged as is AGFI of .80. RMR is reduced from .12 to .095. Residuals indicate poor fit, as they ranged from -14.83 to 12.8 with 64% significant at  $p < .05$ .

**Do Capabilities Indirectly Affect Organization Performance by Working Through One Another?** Variables can affect other variables indirectly through a third intervening, or mediator, variable. The effect of each indirect path is calculated by multiplying together the path coefficient for each segment. Total effect is the sum of direct and indirect effects (Kline, 1998). Hypothesis 4 posits that the capabilities indirectly affect Organization Performance by working through, or affecting, one another. This set of hypotheses is depicted in Figure 9 by the directional arrows from each capability into each of the other two capabilities within the interior of the capability component.

As discussed in the Structural Equation Model Basics section, inserting all the indirect path segments for each of the three capabilities at once would cause the model to become non-recursive and unsolvable. In this analysis I inserted indirect paths one at a time, first selecting the path that the *Practices*  $\rightarrow$  *Capabilities*  $\rightarrow$  *Performance* hybrid model analysis modification index indicated had the greatest potential to reduce  $\text{Chi}^2$ . Next, I inserted the path with the highest modification index from that analysis. I repeated this twice (for a total of four iterations) until the modification index indicated that no

additional paths would reduce  $\text{Chi}^2$  by more than 3.84, the significance level for one degree of freedom ( $p < .05$ ).

Characteristics of the direct and indirect hybrid model are described in Exhibit 6.

<b>Exhibit 6</b>			
<b>Do Capabilities Indirectly Affect Performance by Working through One Another?</b>			
Observations	120	Recursive?	No
Parameters	40	Cases/parameter	20
Degrees of Freedom	80	Power	.99

The model has four factors and 15 observed measures. There are 120 (15 times 16 divided by 2) observations and 40 parameters: 12 variances for measurement error, four factor variances, six covariances, 10 direct effects, and eight factor loadings. It is non-recursive with two closed loops. It is apparently over-identified with 80 degrees of freedom and has one more exogenous measured variable than closed loop, which satisfies the rank condition for identification (see Kline, 1998:160-163). Sample size is sufficient to provide a stable result. Power is sufficient to detect an exact fit, if one exists, at the  $\alpha = .05$  level.

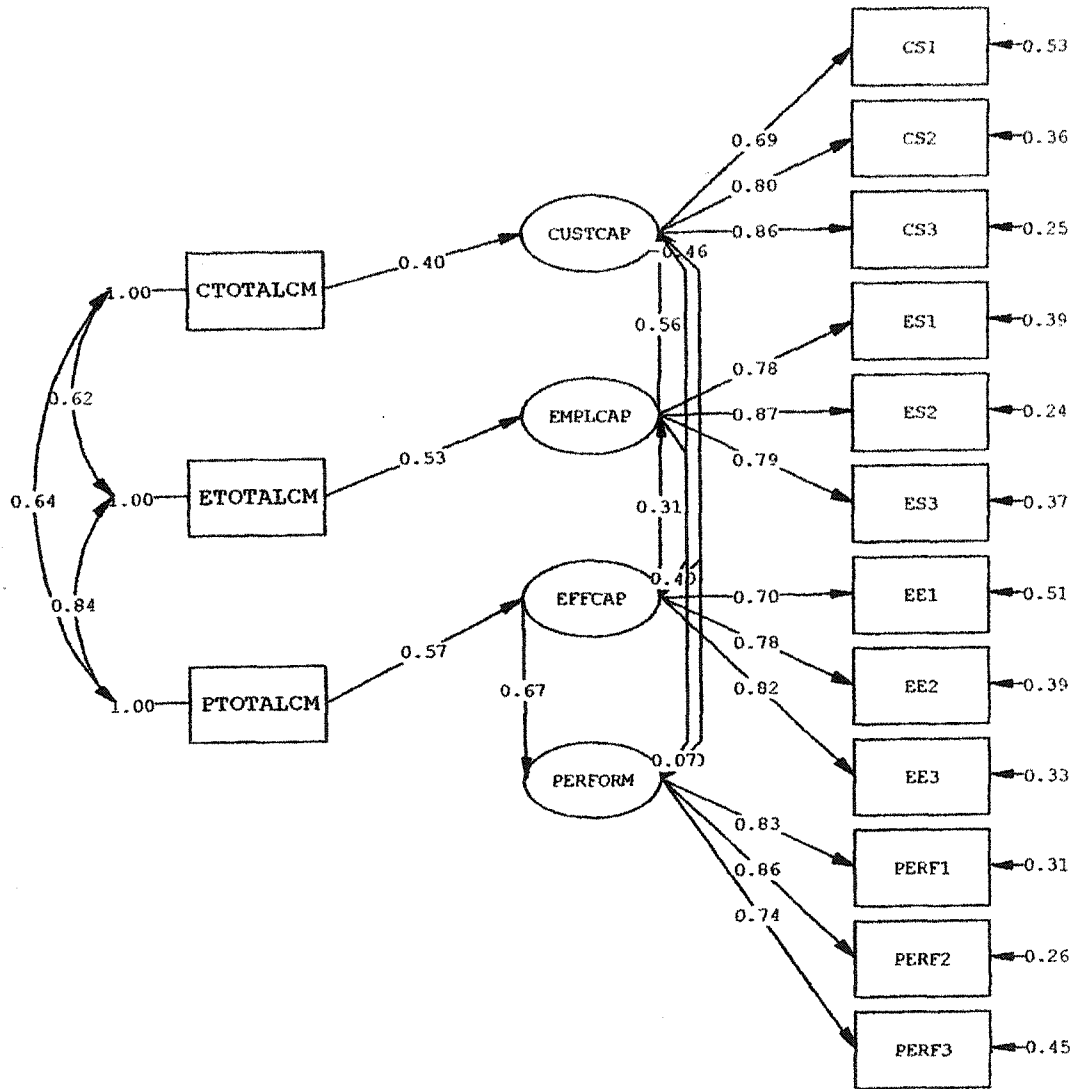
Paths inserted and their affect on  $R^2$  and  $\text{Chi}^2$  are shown below in Table 12. Figure 16 depicts the hybrid model with both direct and indirect paths (statistical output is included in CDfile-12).

<b>Table 12</b> <b>Indirect Paths Inserted Between Capabilities and</b> <b>Their Overall Affect on the <i>Practices → Capabilities → Performance</i> Hybrid</b> <b>Model</b>				
<b>Step</b>	<b>Path</b>	<b><math>R^2</math></b>	<b><math>\text{Chi}^2</math></b>	<b><math>\text{Chi}^2/\text{df}</math></b>
<b>0</b>	None	.55	930.97	11.08
<b>1</b>	Enterprise Efficiency → Employee	.57	826.48	9.96
<b>2</b>	Employee → Customer	.58	742.23	9.05
<b>3</b>	Customer → Enterprise Efficiency	.59	700.31	8.65
<b>4</b>	Enterprise Efficiency → Customer	.59	669.47	8.37
<b>Change</b>	Four indirect paths	.04	(261.50)	(2.71)

I first inserted the Enterprise Efficiency Capability → Employee Capability path with modification index of 101.48. This reduced  $\text{Chi}^2$  by 104.49 or 11.2%. I next inserted the Employee Capability → Customer Capability path with modification index of 90.61. This reduced  $\text{Chi}^2$  by 84.25 or 10.2%. Third, I inserted the Customer Capability → Enterprise Efficiency Capability path with modification index of 13.43. This reduced  $\text{Chi}^2$  by 41.92 or 5.6%. As this creates a closed loop from Enterprise Efficiency Capability → Employee Capability → Customer Capability → Enterprise Efficiency Capability, inserting this path causes the model to become non-recursive. It remains solvable as it apparently meets the

Figure 16

Direct and Indirect Hybrid Model



$\chi^2=669.47$ ,  $df=80$ ,  $P\text{-value}=0.00000$ ,  $RMSEA=0.096$ ,  $R^2=.59$

$\chi^2/df=8.37$ ,  $NFI=0.95$ ,  $NNFI=0.94$ ,  $CFI=0.96$ ,  $RMR=0.054$ ,  $GFI=0.90$ ,  $AGFI=0.85$

additional rank and order identification requirements for non-recursive models (Kline, 1998). Last, I inserted Enterprise Efficiency Capability → Customer Capability path with modification index of 13.09. This reduced Chi<sup>2</sup> by 30.84 or 4.4%. This creates a second closed loop directly between Customer Capability and Enterprise Efficiency Capability. The remaining paths, Customer Capability → Employee Capability and Employee Capability → Enterprise Efficiency Capability, were not inserted as their modification indices, .69 and 1.09, are less than 3.84.

Path coefficients are shown in Table 13.

<b>Table 13</b>				
<b>Direct and Indirect Hybrid Model Path Coefficients</b>				
<b>Capability</b>	<b>Customer</b>	<b>Employee</b>	<b>Enterprise Efficiency</b>	<b>Organization Performance</b>
<b>Customer →</b>	--	--	.40	.10
<b>Employee →</b>	.56	--	--	.07
<b>Enterprise Efficiency →</b>	-.46	.31	--	.67

Adding these four indirect paths appears to decrease the direct effect on Organization Performance of Customer Capability and Employee Capability, but increase that of Enterprise Efficiency Capability. The .40 Customer Capability → Enterprise Efficiency Capability path coefficient is consistent with the research regarding the importance of cultivating good customer relationships. The .56 Employee Capability → Customer Capability path coefficient is consistent with the research of Schneider, Bowen, and others

of the effect on customers (and then to the bottom line) of training and high morale among an organization's employees. The  $-.46$  Enterprise Efficiency Capability  $\rightarrow$  Customer Capability path coefficient is counter to the predicted positive relationship of this research that posits that a well organized, efficient operation would enhance an organization's ability to build a strong customer base and supportive of an antagonistic relationship between customers and operating efficiency. The  $.31$  Enterprise Efficiency Capability  $\rightarrow$  Employee Capability path is consistent with the broad spectrum of management research regarding the importance of positive workplace and operating qualities in building and maintaining an organization's workforce.

Direct, indirect, and total effects of the capabilities on Organization Performance are shown in Table 14.

<b>Effect</b>	<b>Customer</b>	<b>Employee</b>	<b>Enterprise Efficiency</b>
<b>Direct</b>	.10	.07	.67
<b>Indirect<sup>11</sup></b>	.24	.19	-.08
<b>Total</b>	.34	.26	.59

Both Customer Capability and Employee Capability appear to operate most effectively indirectly through other capabilities, as their indirect effects are more than double their direct effects. This may likely result from indirect paths to Organization Performance

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<sup>11</sup>

Indirect effects include effects of all possible combinations of segments in the model, not just the two and three segment paths hypothesized (Kline, 1998:120).

through Enterprise Efficiency Capability (e.g., Customer Capability → Enterprise Efficiency capability → Organization Performance and Employee Capability → Customer Capability → Enterprise Efficiency Capability → Organization Performance) as its direct effect is much larger than either of the other two direct effects. Hypothesis 6 posits a medium total effect size for each capability on Organization Performance. The .34 Customer Capability total effect is medium-sized. The .26 Employee Capability total effect is close to medium-sized, but not quite. The .59 Enterprise Efficiency Capability total effect is large-sized. The negative Enterprise Efficiency Capability → Customer Capability path coefficient more than offsets the value of its positive path to Employee Capability.

Goodness of fit statistics indicate improved model fit over the *Practices → Capabilities → Performance* hybrid model. As shown above,  $\chi^2$  and  $\chi^2$  per degree of freedom decreased. RMSEA decreased from .112 to .096, indicating a mediocre (versus poor) model fit. RMR decreased from .12 to .054, almost indicating good model fit. GFI increased from .87 to .90 and AGFI increased from .81 to .85. NFI, NNFI, and CFI each increased slightly.

**Do Capabilities Interact?** A variable can leverage or compound its effect on another by interacting with a third moderator variable. Mathematically, while indirect effects are the sum of the products of a variable and its indirect path segments, interaction effects are derived by creating new variables from the products of the variables in question, and then determining their path coefficients.

Evaluating interacting variables in SEM is extremely complex. New observed variables are created for each combination of measures of a factor, plus additional variables for factor loadings and error variances. Analyzing Hypothesis 5 with SEM would involve creating 54 new observed variables: nine for each of the three bi-lateral interactions and 27 for the tri-lateral interaction. For an in-depth discussion of the mechanics of SEM interaction analysis see Kenny and Judd (1984), Ping (1996), Jaccard and Wan (1996), and Schumaker and Marcoulides (1998). SEM analysis of the hypothesized interaction terms is appropriate and necessary to fully understand ITM's dynamics; but it is well beyond the scope of this study.

Interacting variables are evaluated in regression analysis by creating a new variable that is the product of the interacting variables. Interaction effect is then added to direct and indirect effects to compute total effect. For this analysis, I created four new variables: three that are products of two capabilities scores and one that is the product of the three capabilities scores. I regressed these on the total for the three Organization Performance measures using forward, stepwise, and backward elimination. Significance level required for variables to enter and stay in the regressions are set at the default  $p = 0.15$ . Table 15 includes the significant interaction terms, non-standardized parameter estimate, and

variance inflation factor<sup>12</sup> (VIF) for each analysis. Statistical reports are included in CDfile-13.

<b>Table 15</b>			
<b>Capabilities Interaction Analysis</b>			
<b>Selection Method</b>	<b>Term</b>	<b>Parameter Estimate</b>	<b>Variance Inflation Factor</b>
<b>Forward (R<sup>2</sup> = .45)</b>	Customer x Employee	.831	18.21498
	Tri-lateral	-.901	34.81742
<b>Stepwise (R<sup>2</sup> = .45)</b>	Customer x Employee	.831	18.21498
	Tri-lateral	-.901	34.81742
<b>Backward (R<sup>2</sup> = .46)</b>	Tri-lateral	-.618	19.20954

Results do not support an interaction effect for any of the capabilities. Although the tri-lateral term survives in each final model, the high VIF indicates an unacceptable level of multicollinearity. Its parameter estimate is also negative. Customer x Employee survives in both the forward and stepwise models, but indicates an unacceptable level of multicollinearity.

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“The variance inflation factor  $VIF_j$  for the  $j$ th variable is given by  $VIF_j = 1/1-R_j^2$ , where  $R_j^2$  is the square of the multiple correlation coefficients from the regression of the  $j$ th explanatory variables. The variance inflation factor of an explanatory variable indicates the strength of the linear relationship between the variable and the remaining explanatory variables. A rough rule of thumb is that variance inflation factors greater than 10 give some cause for concern.” (Der & Everitt, 2002:85)

### **Outcome Measure Construct Validation**

Construct validity for the 12 outcome measures is demonstrated through dimensionality, discriminant validity, reliability, and substantive validity. Convergent validity is not examined as it is beyond the scope of this research.

**Dimensionality.** Both the exploratory and confirmatory factor analyses above indicate there are four interpretable factors among the 12 outcome measures, and that they load as predicted. As shown in Table 8, the four factor model is the only one with significant  $\chi^2$ . As shown in Table 9, loadings for the predicted measures are highest for their a priori factors (columns) and exceed the secondary factor loadings (rows) by at least .2. In deed, the median loading for the 12 apriori measures was .74; in contrast, the median of the remaining 36 loadings was .34. Additionally, in the confirmatory factor analysis, eleven of the loadings exceed the recommended .70. The remaining one is only slightly below it at .68.

**Discriminant validity.** The low correlations, shown in Table 16, between participant sex, education, industry, and functional area and the outcome measures indicate discriminant validity.

<b>Measure</b>	<b>Sex</b>	<b>Education</b>	<b>Industry</b>	<b>Worksite-Description</b>
<b>CS1</b>	-.01	-.07	-.04	-.04
<b>CS2</b>	-.01	-.05	.03	-.02
<b>CS3</b>	.02	-.07	-.06	.01
<b>ES1</b>	-.03	-.03	-.01	-.04
<b>ES2</b>	-.04	-.05	-.03	-.08
<b>ES3</b>	-.04	-.09	-.04	-.02
<b>EE1</b>	-.03	-.05	-.05	-.08
<b>EE2</b>	-.07	.00	-.04	-.05
<b>EE3</b>	-.02	-.09	-.01	-.08
<b>PERF1</b>	-.03	.00	.03	-.02
<b>PERF2</b>	-.05	-.04	.02	.02
<b>PERF3</b>	-.06	-.05	.02	.01
<b>Customer Capability</b>	.00	-.05	.02	-.02
<b>Employee Capability</b>	-.05	-.07	-.03	-.05
<b>Enterprise Efficiency Capability</b>	-.05	-.05	-.04	0.08
<b>Organization Performance</b>	-.06	-.03	.03	.03

**Reliability.** Internal consistency reliability estimates (coefficient alpha) are shown for each factor in Table 7. Specifically, alphas were as follows: Customer Capability, .71; Employee Capability, .79; Enterprise Efficiency Capability, .76; and Organization Performance, .85. These reliability estimates indicate adequate to good levels of internal consistency for each of the four factor scales.

**Substantive validity.** As shown in the *Practices → Capabilities → Performance* Hybrid Model (see Figures 13 and 16), each factor is a part of a nomological network. Each of the three capabilities factors is related to one practice portfolio, Organization Performance, and at least one other capability. Organization Performance is related to each of the three capabilities factors. Further, as shown in Figure 14, capabilities are an integral part of ITM as they mediate the relationship between the portfolios and Organization Performance:  $R^2$  for the unmediated model is .32 versus .55 for Figure 13 and .59 for Figure 16, and all fit statistics are markedly worse when the factors are omitted.

### Testing the Hypotheses

**Hypothesis 1:** Hypothesis 1 posits that the overall portfolio of practices employed by an organization includes discrete portfolios of practices directed toward customers, employees, and enterprise efficiency (see page 52). The results of the reliability and exploratory factor analyses detailed in Table 5, the *Practices → Capabilities → Performance* hybrid model, and the analysis addressing the question “Do portfolios correspond to the hypothesized capabilities?” provide mixed support for this claim—although  $R^2$  and path relationships support it, model fit is poor.

$R^2$  of .55 indicates a large effect size. As discussed in the Final Portfolio Characteristics section of Chapter 4 (pages 86 to 88), the 26 items in each of the three practice portfolios were selected for reliability and internal consistency, and correspondence with outcome. Reliability for each portfolio exceeds .90. All of the practices in each portfolio load on one factor, and there are no second factor loadings greater than the first. Discriminant analysis indicates a sizeable Organization Performance outcome effect for differences in practice usage levels within each portfolio. The *Practices* → *Capabilities* → *Performance* hybrid model results indicate clear and strong path relationships, all significant at  $p < .05$  (see Figure 13): Customer Directed Practices → Customer Capability is .39, Employee Directed Practices → Employee Capability is .72, and Enterprise Directed Practices → Enterprise Efficiency Capability is .70. As shown in Table 8, no secondary portfolio → capability path relationship exceeds that of the hypothesized primary one, and only one secondary path (Customer Directed Practices → Enterprise Efficiency Capability) is close in size to that of the hypothesized primary path.

$\chi^2$  is significant and  $\chi^2$  per degree of freedom of 11.08 exceeds the recommended three. Four of seven fit statistics indicate poor fit, and 62% of residuals are significant at  $p < .05$ .

Conclusion for Hypothesis 1: Mixed support for Hypotheses 1, 1a, 1b, and 1c.
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**Hypothesis 2:** Hypothesis 2 posits that there are three discrete capabilities, each one corresponding to a practice portfolio, and that the incidence of usage of the practices in the corresponding portfolio is positively associated with the capability (see page 54).

The results of the EFA and CFA analyses demonstrates reliability among the 12 outcome measures and support the claim of three discrete capabilities. Items load as predicted on the four factor EFA model, and  $\chi^2$  is not significant. In the CFA analysis, all loadings exceed .70 except for one at .68.  $R^2$  for ten of the 12 indicators exceed .50, with the remaining two very close. Covariance  $< .85$  among factors is supportive of discriminant validity, but indicates the capabilities are not independent. Goodness of fit indices indicate good model fit.

As indicated above in the Hypothesis 1 discussion, results of the *Practices* → *Capabilities* → *Performance* hybrid model and the analysis addressing the question “Do portfolios correspond to the hypothesized capabilities?” support the hypothesized pairing of and positive association between portfolios and capabilities. The large effect size of the Employee Directed Practices → Employee Capability and Enterprise Directed Practices → Enterprise Efficiency Capability paths indicate a strong association between the incidence of usage of practices and these capabilities. Although the Customer Directed Practices → Customer Capability path is of medium effect size, it too indicates a clear relationship between practice usage and the capability.

Capabilities are important to the model as they mediate the relationship between the practice portfolios and organization performance. When capabilities are removed, (see pages 147 to 150)  $R^2$  decreases to .35 and path relationships between practice portfolios

and organization performance decrease for Employee Directed Practices and Enterprise Directed Practices. Fit statistics deteriorate substantially.

Conclusion for Hypothesis 2: Support for Hypotheses 2, 2a, 2b, and 2c.

**Hypothesis 3:** Hypothesis 3 posits that the capabilities positively affect Organization Performance (see page 55). Overall, the results of the *Capabilities* → *Performance* and the *Practices* → *Capabilities* → *Performance* hybrid models provide mixed support for this claim—  $R^2$ , path relationships, and *Capabilities* → *Performance* model fit support it; but *Practices* → *Capabilities* → *Performance* model fit is poor. Table 17 compares  $R^2$  and *Capabilities* → *Performance* path coefficients for both hybrid models.

<b><math>R^2</math> and Path</b>	<b>Model</b>	<b><i>Capabilities</i> → <i>Performance</i></b>	<b><i>Portfolios</i> → <i>Capabilities</i> → <i>Performance</i></b>
<b><math>R^2</math></b>		.62	.55
<b>Customer</b>		.08	.14
<b>Employee</b>		.06	.14
<b>Enterprise Efficiency</b>		.70	.63

$R^2$  for both models indicates a large effect size, although adding the three practice portfolios appears to result in a decrease. All path coefficients are positive. The Enterprise Efficiency *Capability* → *Organization Performance* path coefficient dominates with a large effect size in both models. Effect size for the other two capabilities is small in

both models, but in the *Practices → Capabilities → Performance* hybrid model path coefficients are larger and the Customer Directed Practices → Customer Capability path is significant.

Goodness of fit statistics for the *Capabilities → Performance* hybrid model are the same as for the CFA discussed above. Although  $\chi^2$  is significant and  $\chi^2$  per degree of freedom of 6.09 exceeds the recommended three, six of seven statistics indicate a good model fit. Less than a third of residuals are significant. For the *Practices → Capabilities → Performance* hybrid model,  $\chi^2$  is significant and  $\chi^2$  per degree of freedom of 11.08 exceeds the recommended three. Four of seven fit statistics indicate poor fit, and 62% of residuals are significant at  $p < .05$ .

Conclusion for Hypothesis 3: Mixed support for Hypotheses 3, 3a, 3b, and 3c.

**Hypothesis 4:** Hypothesis 4 posits that capabilities affect Organization Performance indirectly through one another, i.e., through each of the other two capabilities individually and together (see page 56). Results of the “Do Capabilities Indirectly Affect Performance by Working through One Another?” analysis indicates support for six of the nine hypotheses in this set. Customer Capability → Employee Capability and Employee Capability → Enterprise Efficiency Capability did not significantly reduce  $\chi^2$  and thus were not added to the model. Enterprise Efficiency capability → Customer Capability path was negative, counter to the hypothesized positive path. Goodness of fit statistics indicate improved model fit over the *Practices → Capabilities → Performance* hybrid model.

Conclusion for Hypothesis 4: Support for Hypotheses 4, 4b, 4c, 4d, 4f, 4g, 4h, and 4i.  
No support for Hypotheses 4a, and 4e.

**Hypothesis 5:** Hypothesis 5 posits that capabilities affect Organization Performance by interacting with one another (see page 58). Results of the “Do Capabilities Interact?” analysis provides no support for this hypothesis set. Further exploration would require SEM analysis, which is beyond the scope of this research.

Conclusion for Hypotheses 5: No support for Hypotheses 5, 5a, 5b, 5c, and 5d.

**Hypothesis 6:** Hypothesis 6 posits that the capabilities have at least a medium-sized effect on Organization Performance both individually and together (see page 58). Results support these claims for both Customer Capability (medium effect size) and Enterprise Efficiency Capability (large effect size), even though no interaction effect was identified to add to the total effects indicated in Table 14. Although the Employee Capability total effect of .26 is small, it is close to the .30 medium-sized hurdle.  $R^2$  of .59 for the direct and indirect effects *Practices* → *Capabilities* → *Performance* model corresponds to a correlation of .77, a large effect size. Goodness of fit statistics for the direct and indirect effects model indicate improved fit over the original.

Conclusion for Hypothesis 6: Support for Hypotheses 6, 6a, and 6c.  
Encouraging support for 6b.

## Chapter Summary

This chapter evaluates the hypotheses proposed in Chapter 3 against the data collected and prepared in Chapter 4 using exploratory factor, SEM, and multiple regression statistical analyses. The data support most of the hypotheses. There appear to be three discrete portfolios of management practices that correspond to three discrete capabilities. The capabilities are positively associated with Organization Performance. Customer Capability has a total medium-sized effect, Employee Capability has a small-sized effect, and Enterprise Efficiency Capability and ITM have large-sized effects. Regression analysis did not provide support for an interaction effect.

The research and data analysis methods employed in this and Chapter 4 are systematic and empirical. ITM's independent variables integrate the management disciplines. ITM, the practices, and the outcome item measures are straightforward, used in existing organizations, and implementable. Finally, this research demonstrates a clear and significant link between the practices managers choose to employ and how well their organizations perform.

## Chapter 6

### DISCUSSION AND CONCLUSION

#### Introduction

This final chapter integrates and focuses the research described in the previous chapters. It begins with a discussion of the findings and potential contributions to the academic and the practitioner literatures. Next, twelve limitations of the research are identified and discussed. As the research described above marks the beginning—not the end—of this research’s journey, it provides many opportunities for future research. The third section identifies some of them. The chapter and this dissertation end with a brief conclusion restating and tying together the dissertation’s overall thematic messages.

#### Discussion

This study proposes and tests an organization model (ITM) that integrates two organization theories and builds on organization models previously described in the literature. It also describes how organization practices and activity and interactions within the organization affect its performance, and operationalizes six new variables: Customer Directed Practices, Employee Directed Practices, Enterprise Directed Practices, Customer Willingness to Cooperate, Employee Willingness to Cooperate, and Enterprise Efficiency. In this first test of ITM, findings provide preliminary empirical support for it and its assertion that practices employed within an organization affect performance indirectly through capabilities—engaging customers and employees so that they are willing to cooperate with the organization, and enterprise efficiency.

Overall, the results above indicate that the model explains 59% of the variance in Organization Performance. This is a large effect size statistically (Cohen, 1992) as well as for the management literature. Indeed, in the management literature, the link between action and performance is often not examined at all because the theory or prescription is either not tested or is not testable. When such links have been evaluated, they have been typically small (Cummings, Mohrman, Mohrman, & Ledford, 1999; Rogg, Schmidt, Shull, & Schmitt, 2001).

The findings provide support for ITM's assertion that Organization Performance is a composite outcome of capabilities. The exploratory (see Table 9) and confirmatory (see Figure 11) factor analyses provide support for ITM's assertion of three discrete capabilities. The findings, as shown in Table 14, indicate that each capability is strongly associated with Organization Performance. Standardized total effect for Customer Capability is medium-sized at .34, for Employee Capability is small-sized at .26, and for Enterprise Efficiency Capability is large-sized at .59. That the indirect effects of Customer Capability and Employee Capability are several times their direct effects suggests that these capabilities work strongest indirectly through other capabilities. This is consistent with Schneider's work (Schneider & Bowen, 1995) on the effect of employee satisfaction on performance through customer satisfaction.

The findings provide support for ITM's assertion that capabilities mediate the relationship between practices and Organization Performance. As shown by Table 10, capabilities enhance the relationship between practice portfolios and Organization Performance for both Employee Directed Practices and Enterprise Directed Practices. As

shown by Figure 14,  $R^2$  falls to .35 and all fit indices deteriorate when the capabilities are removed from the model.

The findings provide support for ITM's assertion that capabilities result from employing specific, corresponding portfolios of practices directed toward customers, employees, and the enterprise. As shown by Figures 13 (direct paths only) and 16 (direct and indirect paths), the practice portfolios are strongly associated with their corresponding portfolios: Customer Directed Practices has a medium-sized relationship with Customer Capability; while Employee Directed Practices and Employee Capability, and Enterprise Directed Practices and Enterprise Effectiveness have large-sized relationships. Only Customer Directed Practices may have a secondary relationship with another capability (see Figure 15).

This research may contribute to the academic management literature by proposing and testing an organization model that integrates two organization theories and builds on organization models previously described in the literature. The model also describes how organization practices and activity and interactions within the organization affect its performance, and operationalizes six new variables. This may advance understanding of what organizations are and how they operate. By organizing multiple practices into portfolios rather than focusing on one practice at a time, ITM provides a means to identify a large effect size relationship between action taken and performance. Whereas academic research is often focused within one discipline or even a mini-field within a discipline (Simon, 1945; 1997; Lawler, 1985), ITM integrates various disciplines like marketing, quality management, HRM, operations management, and production management.

For the practitioner literature, this research provides these same contributions written for and designed to be used by real life EM's--individuals working inside organizations tasked with making integrated decisions that directly or indirectly affect the organization's ability to meet its goals and survive. With the refinement of methodology and establishment of norms, ITM may potentially be a tool managers can use to improve the performance of their organizations.

### **Limitations**

Although this research was conducted using a systematic and empirical approach, it is limited in at least twelve ways. First, this research is a beginning attempt to **explain** and document how organization practices, decision-making, and activity and interactions within the organization affect its performance. It does not provide a prescription for generating "good performance." It makes no claim that the 78 practices used are the only, or the best, practices organizations can, or should, employ to perform well. These practices are only the ones derived and selected through the methodology described in Chapter 4. This research makes no claim that the 12 outcome measures are the only, or the best, ones to use. They were selected because I *thought* they measured best the latent variables in the model. There certainly may be other, or better measures. Further, **this** research makes no claim that the hypothesized relationships and their structure comprise the ultimate model. These are the ones that seemed most logically consistent with theory. As more information is learned and theory develops, different relationships and a different structure among them may also develop.

Second, the research and ITM address the interests and effects on organization performance of the four primary stakeholders (i.e., customers, employees, suppliers, and firm) only. The interests and effects on organization performance of the five secondary stakeholders (i.e., governments, investors, political groups, communities, and trade associations) are ignored.

Third, although a key objective is to identify a core set of practices that contribute meaningfully and predictably to organization performance, these practices do not represent a complete, never-fail, how-to recipe for generating organization performance from organization activity. Managers must expect not only to adapt these practices to fit the uniqueness of their organizations, but also to employ additional practices above and beyond this core set.

Fourth, the practices identified in this research are only a sampling of the Universe of all Management Practices, and may or may not be representative of all management practices. Although the general management and academic literature reviews were extensive, the studies are in no way exhaustive. Additionally, the reviews were conducted in the context of a content analysis—what qualified as and comprised a “practice” was subjectively determined.

Fifth, the data analysis explains 59% of the variance among the three practice portfolios, capabilities, and Organization Performance. Although this is a large effect, 41% of the variance remains unexplained. Despite a manager’s best efforts, it would not be unreasonable to expect that this variance could dominate an organization’s performance for either intermittent periods or over time. This research does not consider possible

moderators of organization performance such as climate, culture, and satisfaction although they may explain significant amounts of variance. Further, results are not analyzed by either industry or sector.

Sixth, validation of the measurement methodology and the practices is not achievable through the study of a single or even several samples. Validation will have to be built over time. Although the sample base is large and includes a broad and diverse population, it is not representative of all organizations. It may well include bias, for example: organizations that are prosperous, have resources, and for whom training is a priority. The effect of bias, if it exists, is unmeasured and unknown.

Seventh, the three practice portfolios and the three capabilities are highly collinear, or inter-correlated with one another (see Figures 11 and 12). The presence of high multicollinearity within a regression model can create several problems with the data analysis. First, it can result in large standard errors, causing instability in parameter estimates from sample to sample, and non-significant parameter estimates. A different sample may even produce the opposite result, as the effect of overestimating one parameter may cause the other parameter to be underestimated (Leahy, 2000; Williams, 2004). This may well be the case for the capabilities factors. The path coefficient for Enterprise Efficiency Capability-Organization Performance is about ten times those for Customer Capability-Organization Performance and Employee Capability-Organization Performance in Figure 11 and 4.5 times those in Figure 12, but standard errors are virtually the same (.05, .03, and .04 respectively, see s 8 and 9). Second, the regression procedure may not be able to appropriately apportion the individual, unique explanatory

contribution between collinear independent variables. While particular path coefficients may appear individually to be statistically insignificant, in concert they may be highly significant (Kahane, 2001). Thus, although the Enterprise Efficiency Capability effect on Organization Performance may appear to dominate the effect of the other two capabilities on Organization Performance, eliminating them from the model would not only compromise the theory behind ITM, but it could also substantially alter the results. Third, when independent variables are interrelated, their parameter estimates are also interrelated. Thus the presence or absence of the other collinear variables may affect path coefficient magnitude. Fourth, path coefficients of collinear independent variables cannot be interpreted as measures of the change in the expected value of the dependent variable when the independent variable is changed by one unit, holding all other variables constant, as a change in one variable incurs change in the others (Neter, Wasserman, & Kutner, 1983).

Eighth, the data are cross-sectional and collected from a single source at a single point in time. Results assume coincident timing of cause and effect and do not either consider or measure lagged or cumulative effects. Further, cross-sectional, single source data collection may introduce common methods variance (CMV). That the data fit relatively well the four factor Exploratory Factor Analysis and *Capability → Performance* hybrid models indicates that CMV may not be particularly important. On the other hand, the high level of correlation between the Enterprise Efficiency capability and Organization Performance items indicates there is a great deal of overlap in what they measure.

Ninth, all questionnaire item responses and the data derived from them are perceptual in nature, which may introduce a general attribution bias. If it exists, this bias may be mitigated to some degree by placement in the questionnaire of the 12 outcome measures after the practice items. In either event, this bias is not addressed in any way in the research methods.

Tenth, questionnaire participants ranged in rank from the lowest to the highest managerial responsibility. As a result, not all participants may have had the information required to answer each questionnaire item correctly. In some instances, participants may have left the item unanswered and thus was dealt with as missing data. In other instances, the participant might have just guessed.

Eleventh, real customers did not complete the Customer Directed Practices and Customer Satisfaction sections of the questionnaire. Organization employees answered—by second-guessing—in their stead. This may account for all, or part of, the weakness in the Customer Directed Practices and Customer Capability variables, and their path coefficients.

Last, this research conceptually defines organization performance as the organization's ability to meet its goals and survive. The measures for this final outcome variable are subjective judgments of the respondent's perception of how well the organization succeeds in accomplishing its mission and goals, performs in comparison to similar or competitive organizations, and performs at maximum potential. One might argue that an independent, objective measure would be preferred. But which one(s) would be more valid? A wide variety of performance measures are available for publicly

traded corporations; but these are not often available by division or business unit, are rarely available for privately owned organizations, and are subject to accounting and managerial judgment, manipulation, and gaming. Furthermore, they may not be applicable to not-for-profit and governmental organizations. Marshall W. Meyer has developed a body of literature on what he calls the *performance paradox*—“while performance measures and measurement activity have proliferated over time, performance measures tend to be very weakly correlated with one another” (Meyer & O’Shaughnessy, 1993:249). This problem can be addressed somewhat in future research designed to validate the measurement methodology. Business units can be initially sorted into “successful” and “struggling” categories based on objective criteria, and then correlated with questionnaire results.

### **Future Research**

Despite the extent of the time and effort invested, the work described above marks the beginning—not the end—of this research’s journey. In moving forward, the next step would be to validate the measurement methodology, that is, determine whether the 78 practices identified in Chapter 5 are useful in *predicting* organization performance. This research only evaluates the coincident *association* between practice usage and organization performance. Methodology validation could be accomplished by comparing results of questionnaires completed by employees of a group of business units that are considered to be successful with that from a similar group of business units from the same industry (or large corporation) that are considered to be struggling. Responses should

differ between groups and questionnaire results should predict to which group a business unit belongs.

A subsequent step would be to validate the practices; that is, determine whether the 78 practices identified in Chapter 5 are useful in *diagnosing* and *improving* organization performance. This could be accomplished through an intervention field study. First, the employees of an organization seeking to improve its performance would be surveyed about the organization's practices (the before study). Management would then initiate changes in its practice employment based on the questionnaire results. Employees would be surveyed at a later time (the after study). The relationship of changes in practice employment to change in Organization Performance would be analyzed. Organization Performance should improve with increased employment of these 78 specific practices?

Several times within the text, a line of inquiry is prematurely closed because it is beyond the scope of the research. Listed below are some of the numerous opportunities to refine and make this research more complete:

- What are the cumulative and lagged effects on Organization Performance of implementing or changing the usage level of the 78 practices?
- How do the interests of secondary stakeholders affect the organization and its performance?
- How should the content of the Employee Directed Practices portfolio and the measures for Employee Willingness to Cooperate be adapted or changed to incorporate suppliers?

- Are there valid alternates for the three empirical measures of organization performance (PERF1, PERF2, and PERF3)?
- Why is the effect of the Customer Directed Practices and Employee Directed Practices portfolios and their corresponding capabilities on Organization Performance so much smaller than that of Enterprise Directed Practices and Enterprise Efficiency Capability?
- Are these 78 practices the ultimate set? Are there more effective selections?
- Are there industry, sector, cultural, or marketplace specific practices that should be included?
- Should employment of these practices vary between organizations, cultures, or marketplaces?
- Should employment of these practices vary over time?
- Are capabilities partial mediators between the portfolios and Organization Performance? Complete analysis of the capabilities' role as mediators would involve investigating the extent to which they may partially (rather than fully) mediate the relationship between portfolios and Organization Performance.
- Are there moderators at work between the portfolios and capabilities, and/or the capabilities and Organization Performance?
- Would SEM software provide a different result for the interaction effect of the capabilities on Organization Performance? In regression, variables thought to interact are represented by composites of their measures and the interaction term is the product of the composites. In SEM, measures are not combined and new

variables are constructed for every combination of measures for the variables thought to interact.

- What, if any, is the role and effect of demographic variables on practices, capabilities, and Organization Performance?
- Does imputing missing data rather than substituting item and case means affect Organization Performance?
- Does including an unequal number of practices in the portfolios affect results?
- What might be the effect of a feedback loop from Organization Performance to the entrepreneur-manager?
- Are the results of this analysis replicable using different samples, such as: multiple business units within a single company or attendees of an industry function?
- Can convergent validity be established for any or all of the four factors?

**Conclusion**

We live in a society of organizations—collections of members united in pursuit of achieving some end they cannot achieve alone. Organizations are comprised of customers, employees and suppliers, and entrepreneur-managers whose activity and interaction results in organization performance. The practices entrepreneur-managers choose to employ drive their organization's performance. This, in turn, determines how and how well the individuals that comprise the organization live. Within our society of organizations, the practices employed within organizations and the performance that results from them affect how and how well we all live.

## Appendix 1

### Statements about Organizations

#### **Definitions**

“[A] social device for efficiently accomplishing through group means some stated purpose; it is the equivalent of the blueprint for the design of the machine which is to be created for some practical purpose” (Katz & Kahn, 1966:16; 1978).

An organization is a system of consciously coordinated activities or forces of two or more persons (Barnard, 1938; 1968).

**An organization is an economic mechanism designed to achieve ends individuals could not achieve alone.** (Gerstein, 1992).

Firms are administrative organizations and collections of physical, human, and intangible assets. (Mahony & Pandian, 1992).

The firm is an information-processing entity (Ghemawat & Costa, 1993).

Firms exist as collections of evolving capabilities that are managed dynamically for the purpose of earning rents (Williams, 1994).

**The corporation is a constellation of cooperative and competitive interests possessing intrinsic value** (Donaldson & Preston, 1995).

“A systematic arrangement of people brought together to accomplish some specific purpose” (Robins & Decenzo, 2001:3).

“An arrangement of people and resources working in a planned manner toward specified strategic goals” (*Business: The Ultimate Resource*, 2002:1301).

#### **Function**

The purpose of the corporations is to serve society (Barnard, 1938; 1968).

Organizations are mechanisms for transforming inputs to outputs (Coase, 1988a).

“Embedded in Bain-type IO is the view that the firm exists to restrain productive output through exercise of monopoly power or by colluding with other firms” (Conner, 1991:124).

The function of the organization is to make knowledge productive (Drucker, 1993).

The primary function of organization is to enforce the conformity of the individual to norms laid down by the group or by its authority wielding members (Simon, 1945; 1997).

Organizations exist to create value for people (Mayo, 2001).

*“[O]rganizations are tools for shaping the world as one wishes it to be shaped. They provide the means for imposing one’s own definition of the proper affairs of humankind on others”* (Perrow, 1972; 1993:11).

### **Outcome**

Economic performance is the first responsibility of organizations. A business that does not show a profit at least equal to its cost of capital is socially irresponsible (Drucker, 1993).

The corporation is a prodigious amplifier of human effort across national and cultural boundaries. (Ghoshal, Bartlett & Moran, 1999).

**“We have organizations to do things that individuals cannot do by themselves”** (Hall 1972; 1999:3).

Enduring companies don’t exist to merely deliver returns to shareholders (Collins, 2001).

**We choose to create organizations to achieve a vast array of purposes that none of us could achieve alone** (Magretta, 2002).

## Appendix 2

### SEC Regulations Regarding Shareholder Resolutions

- The shareholder must have continuously held at least \$2000 in market value or 1% of the company's securities for at least one year and continue to hold the securities through the shareholder meeting date.
- Each shareholder may submit only one resolution per shareholder meeting.
- The resolution may not exceed 500 words.
- The resolution, as well as all responses to the company's actions, must be submitted in accordance with the SEC schedule.
- The proposer of a resolution or a qualified representative must attend the shareholder meeting.
- Even if a shareholder resolution captures the majority vote, the company is not bound to implement it.
- A company may exclude a proposed shareholder resolution if it falls within one or more of the following 13 substantive bases for exclusion:
  1. The proposal is not a proper subject for action by shareholders under the laws of the jurisdiction of the company's organization.
  2. The proposal would, if implemented, cause the company to violate any state, federal, or foreign law to which it is subject.
  3. The proposal or supporting statement is contrary to any of the Commission's proxy rules, including rule 14a-9, which prohibits materially false or misleading statements in proxy soliciting materials.
  4. The proposal relates to the redress of a personal claim or grievance against the company or any other person, or is designed to result in a benefit to the shareholder, or to further a personal interest, which is not shared by the other shareholders at large.
  5. The proposal relates to operations that account for less than 5% of the company's total assets at the end of its most recent fiscal year, and for less than 5% of its net earnings and gross sales for its most recent fiscal year, and is not otherwise significantly related to the company's business.

6. The company would lack the power or authority to implement the proposal.
7. The proposal deals with a matter relating to the company's ordinary business operations.
8. The proposal relates to an election for membership on the company's board of directors or analogous governing body.
9. The proposal directly conflicts with one of the company's own proposals to be submitted to shareholders at the same meeting.
10. The company has already substantially implemented the proposal.
11. The proposal substantially duplicates another proposal previously submitted to the company by another shareholder that will be included in the company's proxy materials for the same meeting. The proposal deals with substantially the same subject matter as another proposal or proposals that previously has or have been included in the company's proxy materials within a specified time frame and did not receive a specified percentage of the vote.
12. The proposal relates to specific amounts of cash or stock dividends.

Sources: General Rules and Regulations promulgated under the Securities and Exchange Act of 1934, [www.law.uc.edu/CCL/34ActRls/rule14a-8.html](http://www.law.uc.edu/CCL/34ActRls/rule14a-8.html) and Staff Legal Bulletin No. 14 (CF) [www.sec.gov/interps/legal/cfslb14.htm](http://www.sec.gov/interps/legal/cfslb14.htm).

### Appendix 3

#### Nine Axioms

- Axiom 1:** An organization is a system of customers, employees and suppliers, and entrepreneur-managers whose activity and interaction results in performance.
- Axiom 2:** The entrepreneur-manager is the organization's focal dimension, responsible for operations and performance. The entrepreneur-manager is an integrated decision-maker who enters into contracts and directs the activities of employees; and is held accountable and responsible for the organization's performance in terms of profit and survival. The entrepreneur-manager's decisions about which resources are transformed how and when into which products and services to be sold to which customers for what price can have powerful effects on organization performance.
- Axiom 3:** The entrepreneur-manager includes all personnel with responsibility for making integrated decisions which directly or indirectly affect the organization's ability to meet its goals and survive.
- Axiom 4:** Unless shareholders and other passive capital providers also participate as entrepreneur-managers, they reside outside the organization as they do not directly affect organization performance.
- Axiom 5:** Customers seek value through products and services that meet their needs and expectations.
- Axiom 6:** The entrepreneur-manager seeks to build a base of customers willing to cooperate with the organization over time to provide a recurring, predictable, profitable, and growing cash stream.
- Axiom 7:** Employees and suppliers seek to achieve personal goals through accepting inducements to cooperate with the organization. Examples of inducements include: money, secure demand for labor or goods and services, benefits, employment or contractual conditions, and opportunity for growth and advancement.
- Axiom 8:** The entrepreneur-manager seeks to build a base of employees and suppliers willing to cooperate with the organization over time such that they provide a ready, predictable, reliable, growing source of labor and intermediate goods and services.

Axiom 9: The entrepreneur-manager provides the enterprise direction on how to operate efficiently such that it produces products and services customers want (do the right things) in a manner that satisfies the needs of employees and suppliers and provides profit sufficient to induce the entrepreneur-manager to maintain operations and assure organization survival (do things right).

## Appendix 4

### Six Sets of Hypotheses

**Hypothesis 1:** The overall portfolio of practices employed by an organization includes three discrete portfolios of practices.

Hypothesis 1a: One portfolio is directed toward the motives for engagement between the entrepreneur-manager and customers.

Hypothesis 1b: A second portfolio is directed toward the motives for engagement between the entrepreneur-manager and employees and suppliers.

Hypothesis 1c: The third portfolio is directed toward the motives for engagement between the entrepreneur-manager and the enterprise the entrepreneur-manager manages.

**Hypothesis 2:** The result of employing each of the three practice portfolios is three corresponding discrete capabilities.

Hypothesis 2a: The incidence of usage of practices in the portfolio of practices directed towards customers is positively associated with customer willingness to cooperate.

Hypothesis 2b: The incidence of usage of practices in the portfolio of practices directed towards employees and suppliers is positively associated with employee and supplier willingness to cooperate.

Hypothesis 2c: The incidence of usage of practices in the portfolio of practices directed towards the enterprise the entrepreneur-manager manages is positively associated with enterprise efficiency.

**Hypothesis 3:** The strength of organization capabilities is positively associated with organization performance.

Hypothesis 3a: The strength of the organization's capability to obtain customer willingness to cooperate is positively associated with organization performance.

Hypothesis 3b: The strength of the organization's capability to obtain employee and supplier willingness to cooperate is positively associated with organization performance.

Hypothesis 3c: The strength of enterprise efficiency is positively associated with organization performance.

**Hypothesis 4:** Capabilities are positively associated with organization performance indirectly through one another.

Hypothesis 4a: The customer capability is positively associated with organization performance indirectly through the employee and supplier capability.

Hypothesis 4b: The customer capability is positively associated with organization performance indirectly through the enterprise capability.

Hypothesis 4c: The customer capability is positively associated with organization performance indirectly through employee and supplier, and enterprise capabilities.

Hypothesis 4d: The employee and supplier capability is positively associated with organization performance indirectly through the customer capability.

Hypothesis 4e. The employee and supplier capability is positively associated with organization performance indirectly through the enterprise capability.

Hypothesis 4f: The employee and supplier capability is positively associated with organization performance indirectly through the customer and enterprise capabilities.

Hypothesis 4g: The enterprise capability is positively associated with organization performance indirectly through the customer capability.

Hypothesis 4h: The enterprise capability is positively associated with organization performance indirectly through the employee and supplier capability.

Hypothesis 4i: The enterprise capability is positively associated with organization performance indirectly through the customer, and employee and supplier capabilities.

**Hypothesis 5:** Bi-lateral and tri-lateral interactions exist between capabilities and are positively associated with organization performance.

Hypothesis 5a: The interaction of customer and employee and supplier capabilities is positively associated with organization performance.

Hypothesis 5b: The interaction of customer, and enterprise capabilities is positively associated with organization performance.

Hypothesis 5c: The interaction of employee and supplier, and enterprise capabilities is positively associated with organization performance.

Hypothesis 5d: The interaction of customer, employee and supplier, and enterprise capabilities is positively associated with organization performance.

**Hypothesis 6:** The total effects (direct plus indirect plus interaction) of capabilities on organization performance will be at least of medium effect size as defined by Cohen (1992).

Hypothesis 6a: The total effect (direct plus indirect plus interaction) of customer willingness to cooperate on organization performance will be at least of medium effect size as defined by Cohen (1992).

Hypothesis 6b: The total effect (direct plus indirect plus interaction) of employee and supplier willingness to cooperate on organization performance will be at least of medium effect size as defined by Cohen (1992).

Hypothesis 6c: The total effect (direct plus indirect plus interaction) of enterprise efficiency on organization performance will be at least of medium effect size as defined by Cohen (1992).

## Appendix 5

### Questionnaire

Dear AMA Participant,

Thank you for participating in our research. The purpose of this questionnaire is to record the actual practices (not stated or printed policies, but what really happens) in the organization for which you currently work. If you work in a large, multi-division organization, focus on the business unit (branch, division, profit and loss center) where you work.

There are five sections. The first three focus on practices directed toward customers, employees, and efficiency and effectiveness. The next section asks you to evaluate how well your organization competes in the marketplace. The last section includes some demographic questions about yourself and your organization.

Your confidentiality is guaranteed. We do not ask your name or address. No participant will be identified to any outside party.

**Please complete all items!** Questionnaires with incomplete items cannot be used.

Thank you again for your cooperation.

Sincerely,



Richard E. Kopelman  
Professor of Management  
Baruch College



Elizabeth A. Letzler  
Doctoral Student  
Baruch College

### MARKING INSTRUCTIONS

Please respond to the items in the first three sections using the following scale:

- |                               |                                  |
|-------------------------------|----------------------------------|
| ① = Never or Almost Never     | ④ = Frequently                   |
| ② = Infrequently              | ⑤ = Always or Almost Always      |
| ③ = Occasionally or Sometimes | ☒ = Not Applicable or Don't Know |

If you are unsure please choose the response which best describes your organization.

### CUSTOMER DIRECTED PRACTICES

- |  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| 01. Products/services are continually improved.  | ① | ② | ③ | ④ | ⑤ | ☒ |
| 02. Products/services are personalized or customized when possible.                                      | ① | ② | ③ | ④ | ⑤ | ☒ |
| 03. Products/services are differentiated from the competition.   | ① | ② | ③ | ④ | ⑤ | ☒ |
| 04. Products/services consistently meet customer demands for quality.                                    | ① | ② | ③ | ④ | ⑤ | ☒ |
| 05. Products/services may be purchased through multiple channels<br>(e.g., mail order, Internet, store). | ① | ② | ③ | ④ | ⑤ | ☒ |
| 06. Product/service strengths are emphasized in marketing.   | ① | ② | ③ | ④ | ⑤ | ☒ |
| 07. Products/services are regularly compared against the competition.                                    | ① | ② | ③ | ④ | ⑤ | ☒ |
| 08. Product/service price is based on value to the customer.   | ① | ② | ③ | ④ | ⑤ | ☒ |
| 09. A complete range of products/services is available.  | ① | ② | ③ | ④ | ⑤ | ☒ |
| 10. Marketplace changes are responded to quickly.  | ① | ② | ③ | ④ | ⑤ | ☒ |
| 11. Marketplace information is regularly gathered.   | ① | ② | ③ | ④ | ⑤ | ☒ |

- |   |           |   |
|---|-----------|---|
| 12. Customer contact employees are evaluated on customer service in their performance appraisals.     | ① ② ③ ④ ⑤ | ☒ |
| 13. Customer contact employees provide unrushed personal attention.                                   | ① ② ③ ④ ⑤ | ☒ |
| 14. Customer contact employees are responsible for and empowered to solve customer problems.          | ① ② ③ ④ ⑤ | ☒ |
| 15. Customer contact employees are polite, neat, and well dressed.                                    | ① ② ③ ④ ⑤ | ☒ |
| 16. Complaints/problems are resolved quickly.   | ① ② ③ ④ ⑤ | ☒ |
| 17. Customer complaints are analyzed.   | ① ② ③ ④ ⑤ | ☒ |
| 18. Attributes customers value most are incorporated in the product/service.                          | ① ② ③ ④ ⑤ | ☒ |
| 19. Promises made to customers are met and/or exceeded.   | ① ② ③ ④ ⑤ | ☒ |
| 20. Performance measures emphasize customer retention.  | ① ② ③ ④ ⑤ | ☒ |
| 21. Multiple customer segments are targeted with differentiated products and/or marketing strategies. | ① ② ③ ④ ⑤ | ☒ |
| 22. Existing customers are treated as favorably as new ones.  | ① ② ③ ④ ⑤ | ☒ |
| 23. The goal of customer satisfaction influences decisions at all levels.                             | ① ② ③ ④ ⑤ | ☒ |
| 24. Operating hours are convenient for customers.   | ① ② ③ ④ ⑤ | ☒ |
| 25. Customer profiles are developed.  | ① ② ③ ④ ⑤ | ☒ |
| 26. Customer satisfaction is measured (e.g., questionnaire, focus groups).                            | ① ② ③ ④ ⑤ | ☒ |
| 27. Customer comments are incorporated in products and processes.                                     | ① ② ③ ④ ⑤ | ☒ |
| 28. Former customers are interviewed regarding suggestions for improvement.                           | ① ② ③ ④ ⑤ | ☒ |
| 29. Mystery shoppers are used to test the quality of products/services.                               | ① ② ③ ④ ⑤ | ☒ |
| 30. The physical appearance of the business location is attractive to customers.                      | ① ② ③ ④ ⑤ | ☒ |
| 31. Supplier selection is based on product quality and/or service reliability.                        | ① ② ③ ④ ⑤ | ☒ |
| 32. Detailed technical information about products/services is posted on a website.                    | ① ② ③ ④ ⑤ | ☒ |
| 33. Objective, reliable criteria is used to measure progress toward quality goals.                    | ① ② ③ ④ ⑤ | ☒ |
| 34. Employees are trained to serve customers well.  | ① ② ③ ④ ⑤ | ☒ |
| 35. All employees, including senior management, regularly come into contact with customers.           | ① ② ③ ④ ⑤ | ☒ |
| 36. Environmentally friendly practices (e.g., recycling, avoiding pollution) are employed.            | ① ② ③ ④ ⑤ | ☒ |
| 37. Business is conducted in an ethical manner, even when costly.                                     | ① ② ③ ④ ⑤ | ☒ |

### EMPLOYEE DIRECTED PRACTICES

- |   |           |   |
|---|-----------|---|
| 01. Employees are trusted, respected, and treated fairly.   | ① ② ③ ④ ⑤ | ☒ |
| 02. Employee concerns are responded to with action, not just words.   | ① ② ③ ④ ⑤ | ☒ |
| 03. Employees at all levels are eligible for participation in profit-sharing and/or stock option plans.                       | ① ② ③ ④ ⑤ | ☒ |
| 04. Employees are compensated fairly.   | ① ② ③ ④ ⑤ | ☒ |
| 05. Employees are treated in the manner they are expected to treat customers.   | ① ② ③ ④ ⑤ | ☒ |
| 06. Employees are assisted in balancing work and family responsibilities (e.g., through dependent care, flexible scheduling). | ① ② ③ ④ ⑤ | ☒ |
| 07. Employees are encouraged to maintain fitness and good health.   | ① ② ③ ④ ⑤ | ☒ |
| 08. Employee willingness to be helpful to co-workers is recognized and rewarded.  | ① ② ③ ④ ⑤ | ☒ |
| 09. Employees participate in making decisions which affect them.  | ① ② ③ ④ ⑤ | ☒ |

- |   |           |   |
|---|-----------|---|
| 10. Employees are empowered to make decisions about how they do their work.   | ① ② ③ ④ ⑤ | ☒ |
| 11. Employees are well informed about what is happening within the organization and its environment.  | ① ② ③ ④ ⑤ | ☒ |
| 12. Employees are addressed as mature adults (e.g., communications are straightforward and not condescending).  | ① ② ③ ④ ⑤ | ☒ |
| 13. Employees receive written performance appraisals at least annually.   | ① ② ③ ④ ⑤ | ☒ |
| 14. Employees are provided a comprehensive handbook which spells out company policies.  | ① ② ③ ④ ⑤ | ☒ |
| 15. Employee security (e.g., protection from workplace violence, theft and/or other crime) is taken seriously.  | ① ② ③ ④ ⑤ | ☒ |
| 16. Employees have access to a formal grievance procedure.  | ① ② ③ ④ ⑤ | ☒ |
| 17. Employees are provided access to a comprehensive benefits package (e.g., health insurance, vacation and sick leave, tuition reimbursement, pension plan). | ① ② ③ ④ ⑤ | ☒ |
| 18. Confidentiality of employee personal information is protected.  | ① ② ③ ④ ⑤ | ☒ |
| 19. The organization's climate is friendly and collegial.   | ① ② ③ ④ ⑤ | ☒ |
| 20. Policies, practices, and procedures are consistent throughout the organization.   | ① ② ③ ④ ⑤ | ☒ |
| 21. The work place is well maintained.  | ① ② ③ ④ ⑤ | ☒ |
| 22. Senior management personally knows employees at all levels.   | ① ② ③ ④ ⑤ | ☒ |
| 23. Workloads are realistic.  | ① ② ③ ④ ⑤ | ☒ |
| 24. The workload is evenly divided among employees.   | ① ② ③ ④ ⑤ | ☒ |
| 25. Workstations are designed to avoid or reduce employee health and safety risks (e.g., carpel tunnel syndrome, sick building syndrome, injuries).           | ① ② ③ ④ ⑤ | ☒ |
| 26. Distinctions among hierarchical ranks are minimized (e.g., one cafeteria, comparable benefit packages).   | ① ② ③ ④ ⑤ | ☒ |
| 27. Performance discussions focus on behavior.  | ① ② ③ ④ ⑤ | ☒ |
| 28. Workforce reductions are avoided when possible.   | ① ② ③ ④ ⑤ | ☒ |
| 29. When workforce reductions occur, the process is fair.   | ① ② ③ ④ ⑤ | ☒ |
| 30. Managers serve as mentors to junior staff.  | ① ② ③ ④ ⑤ | ☒ |
| 31. Managers are required to work periodically on the shop floor or in the field.   | ① ② ③ ④ ⑤ | ☒ |
| 32. Managers generally let workers do their jobs (no micromanaging).  | ① ② ③ ④ ⑤ | ☒ |
| 33. Open positions are filled from within.  | ① ② ③ ④ ⑤ | ☒ |
| 34. Positive comments from customers about specific employees are publicized.   | ① ② ③ ④ ⑤ | ☒ |
| 35. Reward programs allow many employees to win, not just one person.   | ① ② ③ ④ ⑤ | ☒ |
| 36. Successes are celebrated.   | ① ② ③ ④ ⑤ | ☒ |
| 37. Communication channels are open.  | ① ② ③ ④ ⑤ | ☒ |
| 38. Quality of work life and/or job satisfaction feedback is systematically sought by surveys.  | ① ② ③ ④ ⑤ | ☒ |
| 39. Up-to-date job descriptions exist for all positions.  | ① ② ③ ④ ⑤ | ☒ |
| 40. Job actions and decisions regarding individual employees are fully documented.  | ① ② ③ ④ ⑤ | ☒ |
| 41. Human resource management practices involve minimal bureaucratic red tape.  | ① ② ③ ④ ⑤ | ☒ |
| 42. There is a written policy regarding the conduct (e.g., dress code, language) required of contract labor and consultants.                                  | ① ② ③ ④ ⑤ | ☒ |

## EFFICIENCY AND EFFECTIVENESS DIRECTED PRACTICES

01. Mission statement and core values are well communicated.	① ② ③ ④ ⑤	☒
02. Significant resources are spent annually on research and development.	① ② ③ ④ ⑤	☒
03. Mutually beneficial relationships are established with suppliers, vendors, and other business partners.	① ② ③ ④ ⑤	☒
04. Managers coach/support subordinates.	① ② ③ ④ ⑤	☒
05. Managers lead by example.	① ② ③ ④ ⑤	☒
06. Succession is planned so that changes in personnel are not disruptive.	① ② ③ ④ ⑤	☒
07. Decisions are well thought out in advance.	① ② ③ ④ ⑤	☒
08. Decision-making is decentralized (e.g., made at the small group or team level).	① ② ③ ④ ⑤	☒
09. The work force, including management, is diverse in background, experience, ethnic make-up, etc.	① ② ③ ④ ⑤	☒
10. Departments work together; there is no "us" versus "them" mentality.	① ② ③ ④ ⑤	☒
11. Products/services are marketed through multiple media (e.g., television, magazines).	① ② ③ ④ ⑤	☒
12. Products/services are priced to be profitable.	① ② ③ ④ ⑤	☒
13. Marketing and customer service resources are targeted toward the most profitable customers.	① ② ③ ④ ⑤	☒
14. Job assignments are based on objective criteria (e.g., written tests, performance tests, work samples, structured interviews, etc.).	① ② ③ ④ ⑤	☒
15. Work processes are regularly analyzed to identify opportunities to improve operating performance.	① ② ③ ④ ⑤	☒
16. Work practices and processes are flexible enough to adapt quickly to new demands.	① ② ③ ④ ⑤	☒
17. Total Quality Management (TQM) techniques are used, such as reducing complexity, accurate measurement, and statistical process control.	① ② ③ ④ ⑤	☒
18. Internal best practices are shared across business units.	① ② ③ ④ ⑤	☒
19. The best practices of other companies are incorporated into operating processes.	① ② ③ ④ ⑤	☒
20. Cross-functional and other teams are used to solve problems and/or develop new products.	① ② ③ ④ ⑤	☒
21. Outsourcing is used to reduce costs and/or access resources/technology.	① ② ③ ④ ⑤	☒
22. Fresh ideas are brought into the organization through new employees.	① ② ③ ④ ⑤	☒
23. Below-standard individual job performance is addressed promptly.	① ② ③ ④ ⑤	☒
24. Employees at all levels are provided the opportunity to invest in the company.	① ② ③ ④ ⑤	☒
25. Employees are sufficiently trained to do their jobs well.	① ② ③ ④ ⑤	☒
26. Employees are encouraged to be entrepreneurial and take calculated risks.	① ② ③ ④ ⑤	☒
27. Employees are encouraged to develop both new and existing customers.	① ② ③ ④ ⑤	☒
28. Employee suggestions for improvement are utilized.	① ② ③ ④ ⑤	☒
29. Employees are provided annual professional (personal development) training.	① ② ③ ④ ⑤	☒
30. Employees are encouraged to learn from mistakes or failures rather than being punished for them.	① ② ③ ④ ⑤	☒
31. Employees are trained to do multiple jobs or tasks (i.e., cross-training, job rotation).	① ② ③ ④ ⑤	☒

- |  |           |   |
|--|-----------|---|
| 32. Employees are provided the resources (e.g., tools, equipment, support, information, time, etc.) they need to do their jobs well. | ① ② ③ ④ ⑤ | ☒ |
| 33. Employee benefits encourage attendance at work (e.g., day care centers, subsidized cafeterias, pay for unused sick days).        | ① ② ③ ④ ⑤ | ☒ |
| 34. Employees receive pay increases with skill acquisition (skill-based pay).  | ① ② ③ ④ ⑤ | ☒ |
| 35. Employee surveys solicit frank, useful suggestions and feedback.   | ① ② ③ ④ ⑤ | ☒ |
| 36. Employees share information through common databases, face-to-face meetings, written reports, etc.                               | ① ② ③ ④ ⑤ | ☒ |
| 37. Employees voice their views respectfully, even if they disagree with management.   | ① ② ③ ④ ⑤ | ☒ |
| 38. Individuals are held accountable for accomplishing specific, challenging goals.  | ① ② ③ ④ ⑤ | ☒ |
| 39. Realistic job previews are offered to all job candidates.  | ① ② ③ ④ ⑤ | ☒ |
| 40. New technologies are used to improve efficiency and effectiveness.   | ① ② ③ ④ ⑤ | ☒ |
| 41. Tools and equipment are up-to-date.  | ① ② ③ ④ ⑤ | ☒ |
| 42. Management science techniques (e.g., inventory control, linear programming, simulation) are used to improve productivity.        | ① ② ③ ④ ⑤ | ☒ |
| 43. Information systems are continuously upgraded to current standards.  | ① ② ③ ④ ⑤ | ☒ |
| 44. Investments in new products/services are evaluated using a formalized and systematic process.                                    | ① ② ③ ④ ⑤ | ☒ |
| 45. Profits are reinvested in the business for future growth.  | ① ② ③ ④ ⑤ | ☒ |
| 46. Risk management techniques (e.g., safe work practice programs, training, and insurance) are used.                                | ① ② ③ ④ ⑤ | ☒ |
| 47. Cash and receivables are monitored and managed carefully.  | ① ② ③ ④ ⑤ | ☒ |
| 48. Resources which are idle or underutilized are either redeployed or sold.   | ① ② ③ ④ ⑤ | ☒ |
| 49. Incentive programs include recognition as well as financial rewards.   | ① ② ③ ④ ⑤ | ☒ |
| 50. A portion of incentive compensation is based on group and/or organizational performance.   | ① ② ③ ④ ⑤ | ☒ |
| 51. Rewards (e.g., raises, bonuses) are determined by job performance.   | ① ② ③ ④ ⑤ | ☒ |
| 52. Rewards are presented promptly.  | ① ② ③ ④ ⑤ | ☒ |
| 53. Individuals and groups are regularly provided feedback on progress toward meeting their goals.                                   | ① ② ③ ④ ⑤ | ☒ |
| 54. Productivity benefits and efficiency savings are shared with employees.  | ① ② ③ ④ ⑤ | ☒ |
| 55. Routine reporting systems are designed to encourage employees to pay attention to details.                                       | ① ② ③ ④ ⑤ | ☒ |
| 56. Information regarding financial and operating performance of the organization is regularly shared with employees.                | ① ② ③ ④ ⑤ | ☒ |
| 57. Problems and conflicts are quickly addressed and resolved.   | ① ② ③ ④ ⑤ | ☒ |
| 58. Cooperative relationships (e.g., partnering, alliances) are established with other enterprises.                                  | ① ② ③ ④ ⑤ | ☒ |

## YOUR VIEW OF YOUR ORGANIZATION

### **CUSTOMER SATISFACTION:**

01. How satisfied do you believe customers are with the organization?

- |                     |                  |                                      |
|---------------------|------------------|--------------------------------------|
| ① Very Dissatisfied | ② Dissatisfied   | ③ Neither Satisfied nor Dissatisfied |
| ④ Satisfied         | ⑤ Very Satisfied |                                      |

02. In your judgment how likely are customers who have purchased once to purchase again?

- |                 |               |                               |
|-----------------|---------------|-------------------------------|
| ① Very Unlikely | ② Unlikely    | ③ Neither Likely nor Unlikely |
| ④ Likely        | ⑤ Very Likely |                               |

03. How likely are customers to recommend the organization (or its products/services) to others?

- |                 |               |                               |
|-----------------|---------------|-------------------------------|
| ① Very Unlikely | ② Unlikely    | ③ Neither Likely nor Unlikely |
| ④ Likely        | ⑤ Very Likely |                               |

### **EMPLOYEE SATISFACTION:**

04. Considering everything, how satisfied are you with your job?

- |                     |                  |                                      |
|---------------------|------------------|--------------------------------------|
| ① Very Dissatisfied | ② Dissatisfied   | ③ Neither Satisfied nor Dissatisfied |
| ④ Satisfied         | ⑤ Very Satisfied |                                      |

05. How would you rate the organization as a place to work for compared to other organizations?

- |                    |                   |           |
|--------------------|-------------------|-----------|
| ① One of the Worst | ② Below Average   | ③ Average |
| ④ Above Average    | ⑤ One of the Best |           |

06. If you have your way, how likely is it that you will be working for this organization five years from now?

- |                 |               |                               |
|-----------------|---------------|-------------------------------|
| ① Very Unlikely | ② Unlikely    | ③ Neither Likely nor Unlikely |
| ④ Likely        | ⑤ Very Likely |                               |

### **EFFICIENCY AND EFFECTIVENESS:**

07. Compared to other organizations, how efficient is the organization in utilizing its resources to produce products/services at low cost?

- |                    |                   |           |
|--------------------|-------------------|-----------|
| ① One of the Worst | ② Below Average   | ③ Average |
| ④ Above Average    | ⑤ One of the Best |           |

08. Compared to other organizations, how effective is the organization in producing high quality, reliable products/services in a timely manner?

- |                    |                   |           |
|--------------------|-------------------|-----------|
| ① One of the Worst | ② Below Average   | ③ Average |
| ④ Above Average    | ⑤ One of the Best |           |

09. Compared to other organizations, how adaptive is the organization to changes in the environment?

- |                    |                   |           |
|--------------------|-------------------|-----------|
| ① One of the Worst | ② Below Average   | ③ Average |
| ④ Above Average    | ⑤ One of the Best |           |

**PERFORMANCE:**

10. Overall, how successful is the organization in accomplishing its mission and goals?

①                      ②                      ③                      ④                      ⑤                      ⑥                      ⑦                      ⑧                      ⑨                      ⑩                      ☒  
 Completely                      Moderately                      Completely                      Don't Know/  
 Unsuccessful                      Successful                      Successful                      No Opinion

11. Overall, how does the organization's performance compare to the performance of similar, or competitive, organizations?

①                      ②                      ③                      ④                      ⑤                      ⑥                      ⑦                      ⑧                      ⑨                      ⑩                      ☒  
 One of                      Average                      One of                      Don't Know/  
 the Worst                                           the Best                      No opinion

12. Overall, what percent of maximum potential performance is the organization now achieving?

①                      ②                      ③                      ④                      ⑤                      ⑥                      ⑦                      ⑧                      ⑨                      ⑩                      ☒  
 0% to 10%                      About 50%                      About 100%                      Don't Know/  
 of Potential                      of potential                      of Potential                      No opinion

**ABOUT YOUR ORGANIZATION**

1. Your organization's total annual sales (or budget, if nonprofit):

- Under \$2 million
- \$2 million to \$9.9 million
- \$10 million to \$49 million
- \$50 million to \$99 million
- \$100 million to \$499 million
- \$499 million to \$999 million
- \$999 million to \$2 billion
- \$2 billion to \$4.9 billion
- \$5 billion or more

2. The number of people your organization employs:

At All U.S. Locations

- Fewer than 50
- 50 to 99
- 100 to 249
- 250 to 499
- 500 to 999
- 1,000 to 2,499
- 2,500 to 9,999
- 10,000 to 24,999
- 25,000 or more

At Your Worksite

- Fewer than 20
- 20 to 49
- 50 to 99
- 100 to 249
- 250 to 499
- 500 to 999
- 1,000 to 2,499
- 2,500 to 4,999
- 5,000 or more

3. Sector where employed:     For profit                       Not for profit                       Government

4. Industry classification which best describes your organization:

- Manufacturing
- Construction
- Retail
- Health Care Services
- Travel and Entertainment
- Banking, financial services, and real estate
- Not for Profit
- Public Utility
- Government
- Professional Services (legal, accounting, consulting)

5. Your worksite description:

- Corporate headquarters
- Division or department headquarters
- Sales or service office
- Manufacturing plant or factory
- Wholesale or retail outlet

## ABOUT YOURSELF

1. Your sex:
  - Male
  - Female
  
2. Your age:
  - 20 to 29
  - 50 to 59
  - 30 to 39
  - 60 to 64
  - 40 to 49
  - 65 or older
  
3. Your highest level of completed education:
  - High school graduate or less
  - High school plus some college
  - Bachelors degree
  - Bachelors degree plus some graduate work
  - Masters degree
  - Doctoral or professional degree
  
4. How long have you been with your current organization?
  - Less than 1 year
  - 5 to 9 years
  - 1 to 2 years
  - 10 to 14 years
  - 3 to 4 years
  - 15 years or more
  
5. How long have you held your current position?
  - Less than 1 year
  - 5 to 9 years
  - 1 to 2 years
  - 10 to 14 years
  - 3 to 4 years
  - 15 years or more
  
6. Your current annual compensation (salary plus bonus):
  - Under \$50K
  - \$150K to \$149K
  - \$50K to \$99K
  - \$150K to \$199K
  - \$100K to \$149K
  - \$200K or more
  
7. Your occupation:
  - Production/operations
  - Technical/Professional
  - Service
  - Sales/Marketing
  - Managerial/Executive
  - Clerical/Administrative
  
8. Your primary functional area (please mark only one):
  - Communications
  - General Management
  - Accounting
  - Sales or Marketing
  - Finance
  - Human Resources
  - Manufacturing
  - Purchasing
  - Transportation & Distribution
  - Information Systems & Technology
  - Insurance & Risk Management
  - Research & Development
  
9. How many people report directly to you?
  - None
  - 4 to 5 people
  - 1 person
  - 6 to 9 people
  - 2 to 3 people
  - 10 or more people
  
10. Please indicate the management level of your current position, in terms of its reporting relationship to the Chief Executive Officer (CEO) or your organization. If you serve as CEO, mark Level 1; if you report directly to the CEO, mark Level 2; if you are further removed from the CEO, please mark the number indicating your management level, where the CEO equals Level 1.
  - Level 1
  - Level 4
  - Level 7
  - Level 2
  - Level 5
  - Level 8
  - Level 3
  - Level 6
  - Level 9 or lower

DATE: \_\_\_\_\_

COURSE: \_\_\_\_\_

**THANK YOU FOR HELPING US!!**

## Appendix 6

### Information Page



17 Lexington Avenue  
New York, New York 10010

### Information Page

My name is Elizabeth A. Letzler and I am a doctoral student in the Ph.D. Program in Business at the Graduate Center of the City University of New York (CUNY), and Principal Investigator of this project. Entitled "Selecting a Portfolio of Management Practices: A Three-Dimensional Model of the Determinants of Organizational Performance," this research studies various management practices used in organizations. The results of my study should help organizations select business practices that will enhance overall performance. I would like to ask you to fill out my eight-page questionnaire.

Completing the questionnaire should take approximately 30 to 45 minutes. When you return to me your completed questionnaire, I will offer you one of several books published by AMACOM as a thank you. All information will be gathered anonymously held in strict confidence. Participation in this study is completely voluntary, although we can only use fully completed questionnaires.

The cost to you for participating in this study is the contribution of your time, and sharing your perceptions regarding how your employing organization operates. Benefits include your assisting in the development of a model that will enable businesses to select practices that enhance overall performance. This research may initiate a new stream of academic inquiry. There will be approximately 1,000 participants in this study.

I may publish results of the study, but names of people, or any identifying characteristics, will not be used in any of the publications. If you would like a copy of the study, please provide me with your address and I will send you a copy in the future.

If you have any questions about this research, you can contact me at (516) 546-1562 or [LizLetzler@netscape.net](mailto:LizLetzler@netscape.net) ; or you can contact my advisor Dr. Richard E. Kopelman at (646) 312-3629 or [Richard\\_Kopelman@baruch.cuny.edu](mailto:Richard_Kopelman@baruch.cuny.edu). If you have questions about your rights as a participant in this study, you can contact Hilry Fisher, Sponsored Research, The Graduate Center/City University of New York, (212) 817-7523, [hfisher@gc.cuny.edu](mailto:hfisher@gc.cuny.edu).

Thank you for your participation in the study. I will give you a copy of this form to take with you.

A handwritten signature in black ink, appearing to read 'Elizabeth A. Letzler'.

Elizabeth A. Letzler



## Human Participant Protections Education for Research Teams

### Completion Certificate

---

This is to certify that

**Elizabeth Letzler**

has completed the **Human Participants Protection Education for Research Teams** online course, sponsored by the National Institutes of Health (NIH), on 01/08/2002.

This course included the following:

- key historical events and current issues that impact guidelines and legislation on human participant protection in research.
- ethical principles and guidelines that should assist in resolving the ethical issues inherent in the conduct of research with human participants.
- the use of key ethical principles and federal regulations to protect human participants at various stages in the research process.
- a description of guidelines for the protection of special populations in research.
- a definition of informed consent and components necessary for a valid consent.
- a description of the role of the IRB in the research process.
- the roles, responsibilities, and interactions of federal agencies, institutions, and researchers in conducting research with human participants.

---

National Institutes of Health  
<http://www.nih.gov>

## Appendix 8

## IRB Approval to Use Human Subjects in Research



Office of the Vice President for Research and Sponsored Programs

Committee on the Protection of Human Subjects

The Graduate School and University Center  
The City University of New York  
365 Fifth Avenue  
New York, NY 10016-4309  
TEL: 212.817.7523 FAX: 212.817.1629

To: Letzler, Elizabeth (Ph.D. in Business Management)

From: Julia Wrigley, Ph.D.  
Deputy Chairperson

Date: January 14, 2002

Subject: IRB 6-05-01-02 • "Selecting a Portfolio of Management Practices: A Three-Dimensional Model of the Determinants of Organizational Performance"

I have reviewed your application for IRB consideration for the above-referenced project. This project is judged to be exempt from IRB review under *45CFR46.101.b(2)*.

No further IRB review is necessary unless modifications are made to the protocol related to human research subjects.

If you have any questions, please feel free to contact me through the IRB Office at 817-7523.

c: Richard E. Kopelman

<http://www.gc.cuny.edu>

The Graduate School and University Center is The City University of New York's doctorate-granting institution, which operates in conjunction with all the CUNY campuses: Bernard M. Baruch College, Borough of Manhattan Community College, Bronx Community College, Brooklyn College, The City College, The City University of New York Medical School, The City University of New York School of Law at Queens College, The College of Staten Island, Medgar Evers College, Eugene Maria de Hostos Community College, Hunter College, John Jay College of Criminal Justice, Kingsborough Community College, Fionello H. LaGuardia Community College, Herbert H. Lehman College, New York City Technical College, Queens College, Roosevelt University, York College.

## **Appendix 10**

### **Final Measurement Model Items**

#### **Customer Directed Practices**

1. Products/services are continually improved.
3. Products/services are differentiated from the competition.
4. Products/services consistently meet customer demands for quality.
6. Product/service strengths are emphasized in marketing.
7. Products/services are regularly compared against the competition.
8. Product/service price is based on value to the customer.
9. A complete range of products/services is available.
10. Marketplace changes are responded to quickly.
11. Marketplace information is regularly gathered.
12. Customer contact employees are evaluated on customer service in their performance appraisals.
13. Customer contact employees provide unrushed personal attention.
14. Customer contact employees are responsible for and empowered to solve customer problems.
15. Customer contact employees are polite, neat, and well dressed.
16. Complaints/problems are resolved quickly.
17. Customer complaints are analyzed.
18. Attributes customers value most are incorporated in the product/service.
19. Promises made to customers are met and/or exceeded.
20. Performance measures emphasize customer retention.

22. Existing customers are treated as favorably as new ones.
23. The goal of customer satisfaction influences decisions at all levels.
26. Customer satisfaction is measured (e.g., questionnaire, focus groups).
27. Customer comments are incorporated in products and processes.
33. Objective, reliable criteria is used to measure progress toward quality goals.
34. Employees are trained to serve customers well.
36. Environmentally friendly practices (e.g., recycling, avoiding pollution) are employed.
37. Business is conducted in an ethical manner, even when costly.

### **Employee and Supplier Directed Practices**

1. Employees are trusted, respected, and treated fairly.
2. Employee concerns are responded to with action, not just words.
4. Employees are compensated fairly.
5. Employees are treated in the manner they are expected to treat customers.
6. Employees are assisted in balancing work and family responsibilities (e.g., through dependent care, flexible scheduling).
7. Employees are encouraged to maintain fitness and good health.
8. Employee willingness to be helpful to co-workers is recognized and rewarded.
9. Employees participate in making decisions which affect them.
10. Employees are empowered to make decisions about how they do their work.
11. Employees are well informed about what is happening within the organization and its environment.
12. Employees are addressed as mature adults (e.g., communications are straightforward and not condescending).
16. Employees have access to a formal grievance procedure.
18. Confidentiality of employee personal information is protected.
19. The organization's climate is friendly and collegial.
20. Policies, practices, and procedures are consistent throughout the organization.
21. The work place is well maintained.
24. The workload is evenly divided among employees.
26. Distinctions among hierarchical ranks are minimized (e.g., one cafeteria, comparable benefits packages).
30. Managers serve as mentors to junior staff.

32. Managers generally let workers do their jobs (no micromanaging).
33. Open positions are filled from within.
34. Positive comments from customers about specific employees are publicized.
36. Successes are celebrated.
37. Communication channels are open.
39. Up-to-date job descriptions exist for all positions.
40. Job actions and decisions regarding individual employees are fully documented.

### **Enterprise Efficiency Directed Practices**

4. Managers coach/support subordinates.
5. Managers lead by example.
6. Succession is planned so that changes in personnel are not disruptive.
7. Decisions are well thought out in advance.
10. Departments work together; there is no “us” versus “them” mentality.
15. Work processes are regularly analyzed to identify opportunities to improve operating performance.
16. Work practices and processes are flexible enough to adapt quickly to new demands.
18. Internal best practices are shared across business units.
19. The best practices of other companies are incorporated into operating processes.
20. Cross-functional and other teams are used to solve problems and/or develop new products.
23. Below-standard individual job performance is addressed promptly.
26. Employees are encouraged to be entrepreneurial and take calculated risks.
28. Employee suggestions for improvement are utilized.
30. Employees are encouraged to learn from mistakes or failures rather than being punished for them.
31. Employees are trained to do multiple jobs or tasks (i.e., cross-training, job rotation).
32. Employees are provided the resources (e.g., tools, equipment, support, time information, etc.) they need to do their jobs well.
34. Employees receive pay increases with skill acquisition (skill-based pay).
37. Employees voice their views respectfully, even if they disagree with management.
40. New techniques are used to improve efficiency and effectiveness.

41. Tools and equipment are up-to-date.
43. Information systems are continuously upgraded to current standards.
44. Investments in new products/services are evaluated using a formalized and systematic process.
53. Individuals and groups are regularly provided feedback on progress toward meeting their goals.
54. Productivity benefits and efficiency savings are shared with employees.
55. Routine reporting systems are designed to encourage employees to pay attention to details.
57. Problems and conflicts are quickly addressed and resolved.

## Appendix 11

### Glossary

**Capabilities:** “the unique ways in which each organization structures its work and motivates its people to achieve clearly articulated strategic objectives” (Nadler & Tushman, 1997:5). The capacity to perform (Grant, 1991). Capabilities are information-based, intangible, idiosyncratic, and developed over time (Amit & Schoemaker, 1993).

**Components:** Dimensions of a model divided horizontally by function (i.e., columns).

**Dimensions:** “*An aspect or factor*” (Random House, 1996:378). In this research *dimensions* refers specifically to the three participants comprising an organization (i.e., rows).

**Efficiency:** as defined by Case & Fair (1999:G-4), “*The condition in which the economy is producing what people want at least possible cost*”. As defined by Webster “*accomplishment of or ability to accomplish a job with a minimum expenditure of time and effort*” (Random House, 1996:426).

**Elements:** Dimensions of a model divided vertically by decision-making specialty (i.e., cells).

**Entrepreneur:** “*a person who organizes and manages an enterprise, esp. a business, usu. with considerable initiative and risk*” (Random House, 1996: 447).

**Horizontal Organization Division:** Responsibility is divided by function. Although the delineating lines are drawn vertically on the organization chart, the resulting divisions line up horizontally across the chart.

**Manage:** “*to be in charge or control of an enterprise, business, etc.*” (Random House, 1996:823).

**Management:** “*the act or process of managing*” (Random House, 1996:823).

**Manager:** “*a person who manages an enterprise or one of its parts*” (Random House, 1996: 823).

**Model:** (4) a simplified representation of a system or phenomenon, as in the sciences or economics, with any hypotheses required to describe the system or explain the phenomenon. (Random House, 1997:843).

**Organization:** “*A systematic arrangement of people brought together to accomplish some specific purpose*”. There are three basic components: structure, members, and purpose (Robbins & Decenzo, 2001:3).

**Performance:** “*the manner in which or the efficiency with which something reacts or fills its intended purpose*” (Random House, 1996:1003).

**Practice:** “*a way of doing something*” (Random House, 1996:1059).

**Stakeholder:** “*any identifiable group or individual who can affect the achievement of an organization’s objectives or who is affected by the achievement of an organization’s objectives*” (Freeman & Reed, 1983: 91).

**Theory:** 1. A coherent group of general propositions used as principles of explanation for a class of phenomena: *Darwin’s theory of evolution* 2. A proposed explanation whose status is still conjectural. 3. A body of mathematical principles, theorems, or the like, belonging to one subject: *number theory*. 4. The branch of a science or art that deals with its principles or methods, as distinguished from its practice: *music theory*. 5. A particular conception or view of something to be done or of that method of doing it. 6. A guess or conjecture. 7. Contemplation or speculation (Random House, 1996:1334).

**Vertical Organization Division:** Responsibility is divided by decision making authority in the hierarchy. Although the delineating lines are drawn horizontally on the organization chart, the resulting divisions stack vertically on top of one another.

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### **Autobiographical Statement**

Elizabeth A. Letzler graduated from Duke University in 1974 with a Bachelor of Arts degree in Management Science and from the University of North Carolina at Chapel Hill in 1976 with a Masters of Business Administration degree in finance and marketing. During her 12 year banking career in New York, she worked for Citibank, N. A. in various credit and collections managerial-level positions, completing the Credit Analysis Unit credit officers' training program and qualifying for a credit initial in 1984. She joined Citibank's Private Bank in 1986 as a Relationship Manager lending money to high net worth customers and collecting delinquent loans, most backed by non-traditional collateral. She retired from banking in 1991 to raise her three young children. She earned the Certified Financial Planner® designation from the College of Financial Planning in 1993 and joined the NASD Dispute Resolution panel of arbitrators in 1994. She began her doctoral studies at Zicklin School of Business, Baruch College CUNY in 1997. She is also president of the Ansley Family Reunion, president of the Presbytery of Long Island Board of Trustees, a member of the Board of Directors of United Adult Ministries, and active in the shareholder activist and socially responsible investing communities.