AN INVESTIGATION OF STRATEGIC PLANNING IMPLEMENTATION AND DEPLOYMENT EFFORTS

by:

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(ABSTRACT)

Many American organizations have reported dissatisfaction with the results of their strategic planning, TQM, or other large-scale change efforts. Some have even abandoned their efforts all together. According to the literature, the major problem seems to be with *implementation and deployment.*

One of the major obstacles that organizations face in the implementation and deployment phase of their planning effort is the loss of momentum. They seem to get the ball rolling and generate a lot of initial excitement but then after some period of time, the energy level begins to decline. All of the work that was put in at the beginning seems to get cast aside in order to "get the job done" or to "fight fires."

In an effort to provide American organizations with some recommendations for successful implementation and deployment, this research addressed two questions: (1) What are the "root causes" leading to an organization's strategic planning effort to lose momentum during implementation and deployment, and (2) Does it appear that "Hoshin" organizations struggle with these root causes to a lesser degree than "Non-Hoshin" organizations?

Based on the data that were collected, this research concluded that there was no evidence to support the claim that the "Hoshin" group struggled with the root causes to a lesser degree than did the "Non-Hoshin" group . However, based on the author's review of the literature, intuition, and experience with organizational improvement efforts, this research study recommended that American organizations begin to transition toward a Hoshin-style planning system and a framework for accomplishing this transition was presented.

ACKNOWLEDGMENTS

First and foremost, I would like to thank Dr. D. Scott Sink for his valuable contributions and advice throughout this entire endeavor. I would also like to thank the remainder of my committee members, Dr. Patrick Koelling, Dr. James R. Lang, and Mr. Michael Shapiro for their contributions. The time and effort they spent on my behalf and the suggestions they made are very much appreciated. Each and every one of them certainly helped to improved the quality of the finished product.

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CHAPTER ONE: INTRODUCTION

The world of business is becoming more and more competitive every day. As the "new competition" becomes increasingly tougher, organizations are looking to their strategic planning efforts to help them survive. "Strategic planning, the process by which an organization envisions its future and develops the necessary procedures and operations to achieve that future, has become an institutionalized process in most companies over the last few decades. Often, however, the planning process involves a formal development of a plan which then has little impact on the day-to-day operations of the firm. A successful planning process does not end with a formal document that is then put aside, but rather it taps the lifeblood of the organization in a way that permanently changes the way its members think and act" (Pfeiffer, 1986). Strategic planning *systems* are required that focus an organization's limited resources on its vision of the future *as well as* the pressing requirements of success today. Organizations need to align the strategies and actions of everyone on the same key objectives in order to move towards its vision. In order for this to occur, the organization's strategic plan must be successfully implemented and deployed[1] throughout the organization. Unfortunately, this is where many organizations struggle.

Royce (1978) points out that "many companies have reported dissatisfaction with the results of their planning efforts. Some have even abandoned it. Most are seeking ways to improve both their planning techniques and their success in implementing the plans they make." The focus of this research was on the latter. It focused on identifying why organizations struggle at the implementation and deployment phases of their strategic planning efforts (and more generally, large-scale change efforts).

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1 Deployment as defined by Sink & Morris (1994) is successful implementation both vertically and horizontally in the organizational system

1.1 Problem Statement

One of the major obstacles that organizations face in the implementation and deployment phase of their planning effort is the loss of momentum (Sink & Morris, 1994). Many planning deployment efforts seem to get the ball rolling and generate a lot of initial excitement but then after some period of time, the energy level begins to decline. All of the work that was put into the strategic planning effort seems to get cast aside in order to "get the job done" or to fight fires. The organization is often unable to maintain the level of interest and enthusiasm necessary to ensure that planned interventions are followed through with. Why is it that so many organizations struggle to maintain momentum during the implementation and deployment phase? This is the problem that this research study explored.

1.2 Scope of This Research

1.2.1 Research Objective

The primary objective of this research was to provide American organizations with some guidance to help them maintain momentum during the implementation and deployment phase of their strategic planning efforts. The desired outputs of this thesis included the following:

- List of root causes as to why organizations lose momentum during the implementation and deployment of their strategic planning efforts.
- Final Report distributed to all participants.

- An exploration into whether a strategic planning system similar to Hoshin Kanri helps an organization to maintain momentum during the implementation and deployment of its strategic plan.
- Some guidance for American organizations to help them maintain momentum during implementation and deployment.

1.2.2 Research Questions

As mentioned, the primary objective of this research was to provide American organizations with some guidance for maintaining momentum during the implementation and deployment phase of their strategic planning efforts. In order to accomplish this, I wanted to investigate whether organizations with a "Hoshin-style" planning system appeared to be better at maintaining momentum during implementation and deployment. So, I first had to explore the *root causes* of why organizations lose momentum[2] so I could then determine if it appeared that "Hoshin" organizations were better at dealing with these root causes. Therefore, my research sought to answer the two following research questions:

- What are the "root causes" leading an organizations' strategic planning efforts to lose momentum during implementation and deployment?

- Does it appear that "Hoshin" organizations struggle with these root causes to a lesser degree than "Non-Hoshin" organizations?

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[2] "Loss of momentum" was defined by way of example. If an organization were losing momentum with respect to its strategic planning or large-scale improvement effort, we would expect to see the following types of things:

- the "stalling" of an initiative or an intervention
- interventions increasingly taking longer than planned
- the "failure" of improvement efforts
- interventions not having the desired impact
- interventions that aren't of the desired quality

1.2.3 Research Hypothesis

As previously mentioned, I wanted to explore whether organizations using a Hoshin-style planning system appear to be better at maintaining momentum during implementation and deployment. I hypothesized that they would be. Therefore, the null hypothesis that I tested was:

> H_0: There is no difference in the degree to which "Hoshin" and "Non-Hoshin" organizations struggle with the "root causes" of losing momentum during implementation and deployment.

1.3 Research Models

This section presents a couple of models I used to "bound" my research including: my conceptual framework and my operational research model.

1.3.1 Conceptual Framework

To successfully change an organization, there are a number of organizational sub-systems that must be managed (e.g. Infrastructure, Measurement, Planning, etc.). Within each sub-system, there are many different processes, techniques, approaches, and tools that can be used to manage that particular sub-system. As portrayed in Figure 1-1, this research involved the investigation of the planning subsystem. Specifically, I was exploring a strategic planning approach called Hoshin Kanri (or Hoshin planning) within the planning sub-system.

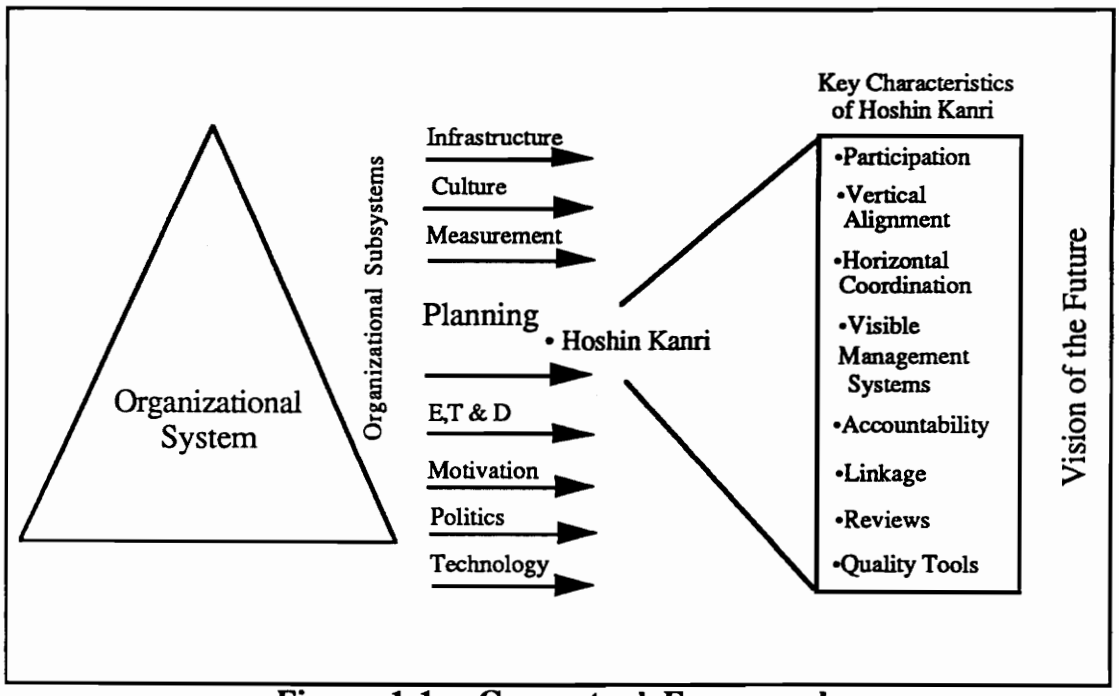

Figure 1-1: Conceptual Framework

1.3.2 Operational Research Model

The operational model for this research is portrayed in Figure 1-2. My research objective was to provide American organizations with some guidance to help them with the implementation and deployment of their strategic plans with the intention of improving organizational performance. Therefore, I explored the reasons why organizations have trouble maintaining momentum (the negative root causes) and then tested to see if organizations with a Hoshin Kanri planning system (those possessing "positive" root causes) struggled less with these root causes.

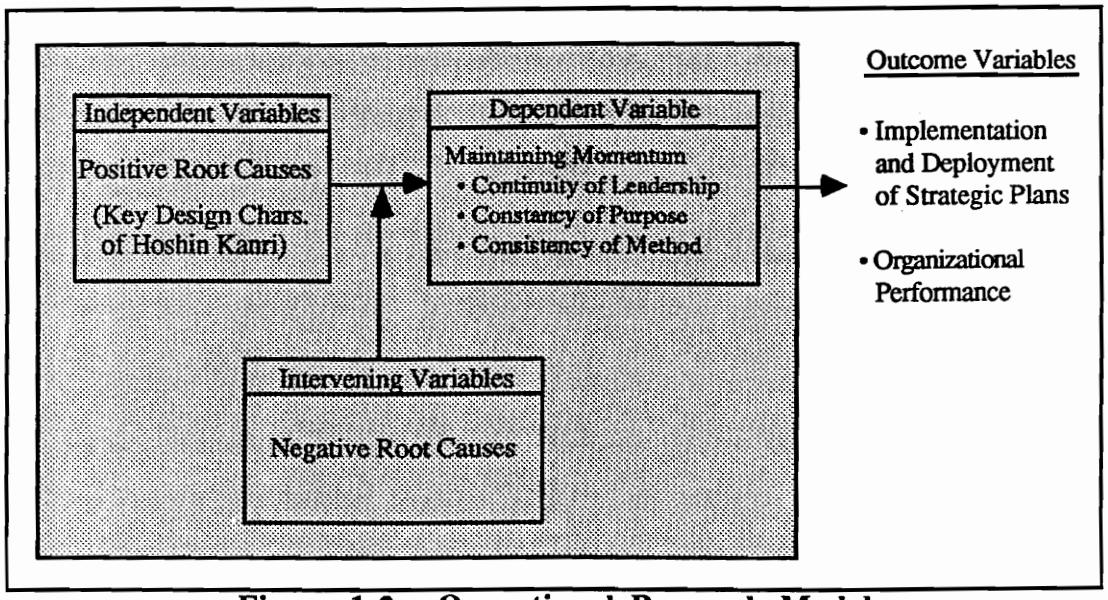

Figure 1-2: Operational Research Model

1.4 Measures of Success

I used the following criteria to measure my success on this research project:

Effectiveness:
- Did I satisfy my research objective?
- Do I have a list of root causes of why organizations lose momentum during the deployment of their strategic plan?

Efficiency:
- Did I use an appropriate amount of resources (i.e.. time, energy, materials, etc.) in the completion of this project?
- Did I complete this project in the time frame I planned?

Quality:
- Does my thesis add value to the Body of Knowledge?
- Did I learn anything?

QWL:
- Did I have fun doing this research?

Innovation:
- Was I able to integrate concepts into a unique approach to the stated problem?

1.5 Justification for This Research

1.5.1 Industrial Engineering Aspect

"A basic aspect of the industrial engineer's professional role has always been helping individuals and organizations participate in the solution of their own problems" (Morris, 1979). He or she doesn't look to solve all of the problems, but rather to help those that can solve the problems find efficient and effective ways to translate their knowledge and experience into action. That is precisely what this research attempted to do. Through the exploration of a Hoshin-style planning system, with the objective being to provide American organizations with some guidance for maintaining momentum during the implementation and deployment of their strategic plans, I was attempting to help these organizations find "efficient and effective ways to translate their knowledge and experience into action." I was not looking to solve the problem for them, but rather to provide them with some *guidance* so that they could solve the problem themselves. Each organization must operationalize my "guidance" to suit their own particular environment.

1.5.2 Social/Organizational Contribution

This research contributes to the body of knowledge on "successful implementation and deployment." Implementation is the stage where all of the hard work that was put into the planning process is supposed to pay off. Up until the implementation phase, all of our effort has been put into expressing what we "want" and how to get it. Now we must "do" so that we may get the desired results. Yet as the current literature points out, many organizations still struggle with implementation and deployment. This research was meant to add to the body of knowledge in this area, hopefully moving American organizations closer to finding a solution to the problem.

1.5.3 Educational Contribution

By conducting this study, I learned a great deal about the research process. People often learn much more by "doing" than by simply reading or observing. Additionally, a research effort of this nature needs to be managed like a project. It provided me with an opportunity to practice using a number of project management tools. Finally, I hope that it provided a foundation for other students to build on. Like the ancient Chinese adage says: "A journey of a thousand miles begins with a single step." This research was meant to be one of those single steps in the long journey of learning about successful implementation and deployment.

1.6 Researcher's Biases

Researcher bias is an issue of great concern in much of the literature on research methodology. It is desirable to eliminate these biases from the study, but often this is impracticable or impossible to do. Instead, usually the best the researcher can do is to acknowledge his or her own biases and then try to be an "honest broker" in the face of these preconceived biases.

Having completed a review of the body of knowledge on Hoshin Kanri prior to conducting the research, I acknowledge that I may have had certain biases regarding what I expected the data to look like. One possible way to eliminate this bias would have been to have someone other than myself manage the Delphi process. However, given the resources for this research project, this alternative seemed impracticable. Additionally, the Delphi technique (when performed correctly) is structured such that it minimizes researcher bias in the data collection and data analysis phases. It is designed to take the facilitator/researcher out of the process. Therefore, while I acknowledge that I may have had certain biases, I feel that they were reasonably well controlled.

CHAPTER TWO: REVIEW OF THE BODY OF KNOWLEDGE

In the writing of this thesis, a great deal of literature was reviewed, several seminars and conferences were attended, and the knowledge of a number of teachers/practitioners was assimilated. This chapter is not intended to discuss this entire "body of knowledge" in detail, but rather to briefly present what I feel to be some of the major concepts associated with the problem being studied. There are four major areas that are covered: Strategic planning, Hoshin Kanri, change management, and the research process.

2.1 Strategic Planning

Strategic planning is a topic that has received a great deal of attention in the literature. There are countless descriptions of the different types of planning, numerous discussions of the difficulties associated with strategic planning efforts, and plenty of different planning models. The following section presents a brief review of some of the planning terminology, the problems with strategic planning, and provides discussions of a "strategic planning" model and a "strategic management" model.

2.1.1 Planning Terminology

The literature on strategic planning contains a host of different terms, making the matter much more confusing and complex than it has to be. Coleman (1988) presented a useful representation of the major terms that are used and the relationships among them (See Figure 2-1). He describes a planning *system* as "all planning and planning related activities of an organization, including corporate, strategic, performance improvement, financial, department, program and project plans." A planning *process* is "a continuous series of actions for logically and systematically considering issues of

the business, appertaining to future periods of time, in order to make decisions likely to be of lower risk than without such considerations" (adapted by Coleman from Greenley, 1986). A planning *methodology* is a framework made up of a series of steps and the various tools and techniques associated with each of those steps. Most of the literature that discusses a "planning process" is in fact referring to (at least based on this terminology) a planning methodology, a series of steps using an assortment of tools and techniques.

An additional distinction must be made between the terms "strategic planning" and "strategic management." According to Gray (1986), "Strategic planning is usually seen, on adoption, as a separate discipline or a management function. It involves the allocation of resources to programmed activities calculated to achieve a set of business goals in a dynamic, competitive environment. Strategic management, on the other hand, treats strategic thinking as a pervasive aspect of running a business and regards strategic planning as an instrument around which all other control systems - budgeting, information, compensation, organization - can be integrated." Further, he notes that most organizations realize the difference between these two terms (and the interdependent nature of strategic management) only after they have experienced difficulties with implementing the results of a freestanding strategic planning process.

Strategic management is clearly a broader definition of strategic planning. It can be considered the framework within which all of an organization's planning activities can be integrated. It is easy to see that many of the problems that organizations run into with their planning efforts are a result of not understanding the difference between strategic planning and the broader concept, strategic management.

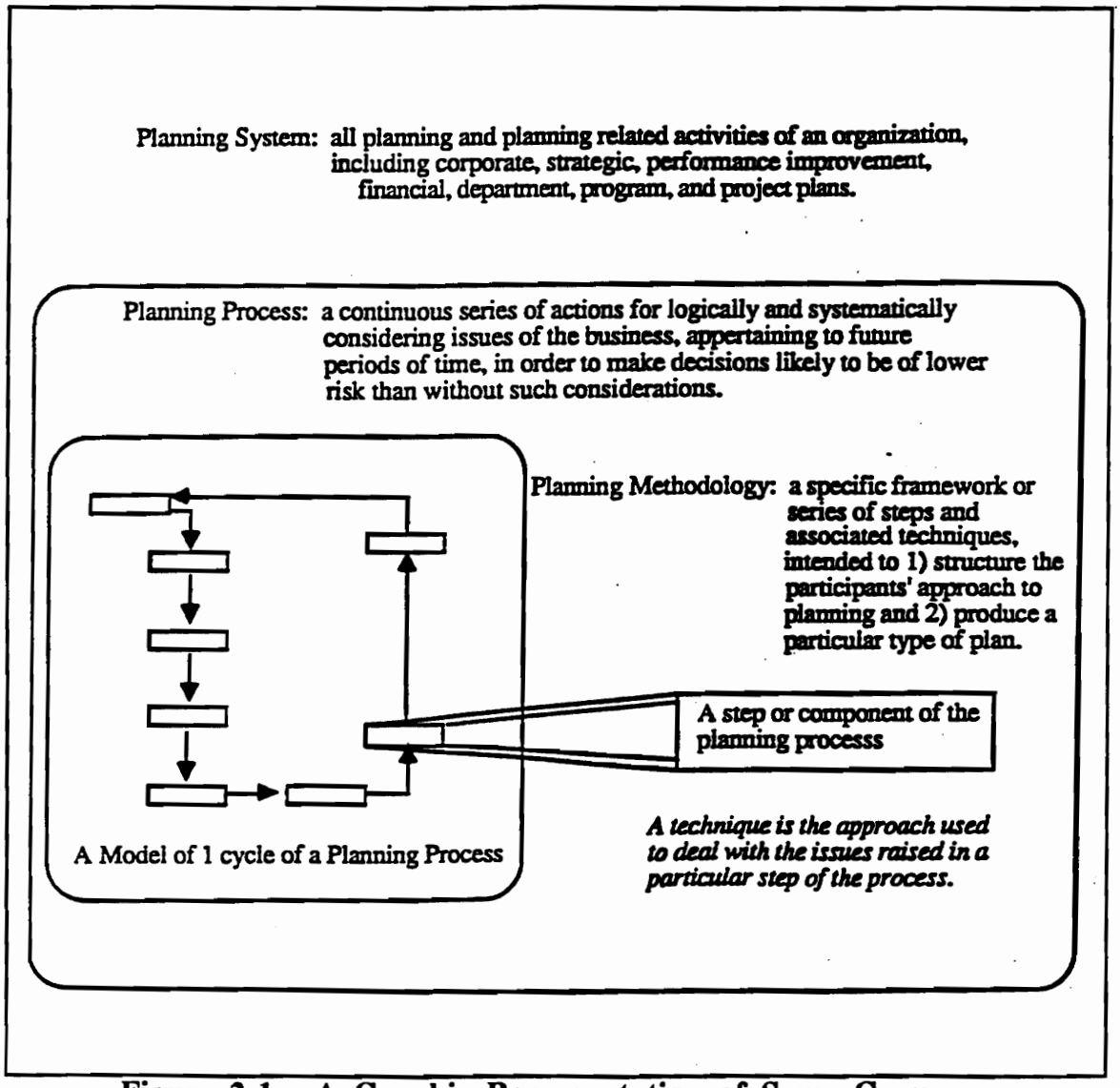

Figure 2-1: A Graphic Representation of Some Common Planning Terms (taken from Coleman, 1988)

2.1.2 Problems With Planning

Many organizations today are struggling with strategic planning. Royce (1978) points out that "many companies have reported dissatisfaction with the results of their planning efforts. Some have even abandoned it. Most are seeking ways to improve both their planning techniques and their success in implementing the plans they make."

According to King (1989), the following are some of the major problems that U.S. organizations sometimes run into with their planning efforts:

- *No Plan.* The first basic problem is having no plan. In some organizations activities just evolve based on a propose-dispose activity. Subordinates propose activities and the boss votes it up or down. One thing is clear. No matter what you do or fail to do, it will not get you there if you don't know where "there" is.

- *Short Range Focus.* Many companies ask customers to place orders early so that the end of the month or quarter or year will look good. This means people work overtime at the end of the month to get extra orders out and sit around or get laid off at the beginning of the month when there is nothing to do. Much of this short-term thinking is generated by the stock market and the felt importance of meeting stock analysis expectations. It is of course highly inefficient, wasteful, and detrimental to the long range interest of the company.

- *Difficult to Measure Success.* Many goals are not stated in a manner in which they can be easily measured. If goals are not measurable it is quite difficult to tell whether they have been achieved or not.

- *Don't Measure.* Sometimes goals are measurable but they are not measured. Sometimes the goals are filed away and forgotten. The next year, armed with a blank sheet of paper, people develop a new plan without any reference to last year's performance.

- *Language Problems.* Sometimes the goals are not written clearly. They may be too lengthy, too complicated or the words may be ambiguous. It is possible for people to understand the words in different ways, especially if they did not participate in developing the goals.

- *Gets Filed.* If the plan is filed, it may soon be forgotten. It is certainly not reviewed or updated. It may be dragged out for the review at the end of the year, for developing a new plan, or it may just be "permanently filed."

- *Fragmented.* In larger organizations there may be plans for different business units that are not connected in any way. This can also happen from department to department or from person to person.

- *Long Range by Corporate Only.* In some cases the long range plan is devised by the corporate group. A consultant may come in to help devise the plan. Sometimes the plan is kept confidential. It is difficult for employees to contribute to the plan if they do not know what it is.

- *Long Range Not Related to Daily.* Planning is sometimes seen as a different activity from daily work. People separate to do planning and then come back to do their regular work. There is no tie-in with daily activities. Consider an alternative in which everyone in the organization knows the five year plan, the three or four key things that they have to do to move that plan along, and each of them ties into their daily activities.

- *Can't Handle Emergencies.* Sometimes things change inside or outside the company that effect the plan. It would be useful if each person in the organization were watching for these changes and knew what to do if they were to happen.

- *New Manager.* A manager may be replaced during the year. There may not be sufficient documentation on how the plan has been implemented to date. This makes it difficult for the new manager to pick up the plan and may significantly effect the progress.

- *Don't Plan for Resources.* People may not allocate money and people consistently with the plan. This can lead to a significant amount of frustration.

- *People Plan for Others.* Sometimes planning is a staff function in which plans are developed for other people. Outsiders may not know enough about the situation to develop a good plan.

- *Unrealistic Plan.* A Stretch goal is sometimes far beyond anyone's reach but is used with the hope that more progress will be made than would be achieved otherwise.

- *Plan as a Weapon Not a Tool.* Sometimes a plan is a veiled or not so veiled threat.

- *The Plan is Poorly Communicated.* In some cases the plan is seen as company confidential and cannot be communicated to the people who are in a position to take action on it. In other cases, the plan is simply not explained well enough to those in the organization.

"Imagine an organization that knows what customers will want five to ten years from now and exactly what they will do to meet and exceed all expectations. Imagine a planning system that has integrated Plan-Do-Check-Act (PDCA) language and activity based on clear, long-term thinking, a realistic measurement system with a focus on process and results, identification of what's important, alignment of groups, decisions by people who have the necessary information, planning integrated with daily activity, good vertical communication, cross-functional communication, and everyone planning for himself or herself, and the buy-in that results" (King, 1989). This is the type of planning going on in Japanese organizations, and it is one of the major reasons why so few of them encounter the same types of problems with their planning efforts as their American counterparts. American organizations need planning processes that more effectively link planning to action as well as a strategic management process that helps them to manage all of their planning efforts in a strategic, integrated, and comprehensive manner.

2.1.3 A Strategic Planning Model

The number of planning models that can be found in the literature is overwhelming. For the purposes of this section, I have decided to concentrate on a single strategic planning model, the Performance Improvement Planning Process, for a couple of reasons. First, I feel it does a good job of addressing all of the "major components" necessary for an effective planning model that are discussed in the literature. Second, it is the one that I am most familiar with because I have been exposed to it through my experience with the Virginia Quality & Productivity Center (VQPC).

The Performance Improvement Planning Process (PIPP) attempts to more effectively link planning to action. It seeks to generate ownership of plans among those that must implement them as well as attempt to integrate all of the organization's improvement efforts. The PIPP is based on several guiding principles including:

- The process by which you plan is as important as the plan itself
- Those who must implement the plan must be involved in the development of the plan
- We are more likely to act our way into a new way of thinking than to think our way into a new way of acting
- Top management support and involvement is a precondition for success

The seven steps of the PIPP are outlined in Figure 2-2 and briefly described below.

Step 1: Organizational Systems Analysis. The purpose of the Organizational Systems Analysis (OSA) is to prepare the management team to plan. It's intended to improve the collective understanding of the organizational system and its environment.

Step 2: Strategic Objectives. This step is intended to define exactly what the organization wants to have accomplished in the next 7 years.

Step 3: Tactical Objectives. The objective here is to identify and prioritize actions to begin devoting resources to in the next 0-2 years to accomplish the strategic objectives.

Step 4: Implementation Planning. Here the management team determines how to proceed with the implementation of the tactical objectives by assigning them to either an individual's job, a functional lead, or an action team.

Step 5: Implementation Management. This is the actual management of the assigned tactical objectives. It is the "doing" step.

Step 6: Performance Measurement. Next, the management team must enhance or develop a system that tells them how the organizational system is performing, if its improving, and/or if its "in control."

Step 7: Implementation, Review, and Evaluation. This step is intended to share information, review and evaluate progress, and promote effective implementation.

In addition to more effective strategic planning models, organizations need a way by which to manage <u>all</u> of their planning efforts. They need a method for managing planning efforts throughout the entire organization in a strategic, integrated, and comprehensive manner. They need a strategic management model.

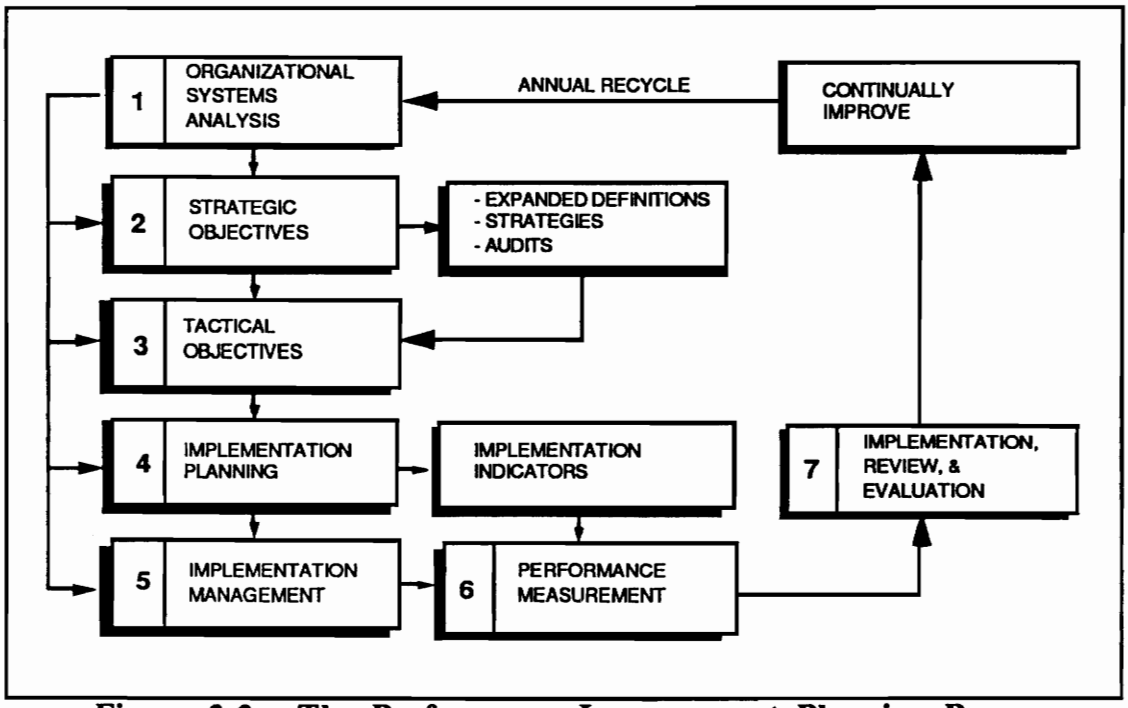

Figure 2-2: The Performance Improvement Planning Process (taken from Sink & Tuttle, 1989)

2.1.4 A Strategic Management Model

As previously mentioned, strategic management is a broader definition of strategic planning, it is the framework within which all of an organization's planning efforts are integrated. Sink and Monetta (1992) described an approach, the Grand Strategy System (GSS), for managing continuous improvement in a dynamic environment. The GSS recognizes the importance of learning from and building on past successes and failures in order to move toward your vision of the future. It is designed to provide a comprehensive and integrated strategy which may be implemented to develop world class quality and productivity management techniques.

The GSS is comprised of three basic components: (1) documenting the past and present; (2) managing strategic areas of activity; and (3) forming a strategic performance improvement plan for the future.

Sink and Monetta's research identified eight key fronts, or subsystems, that must be managed to effectively change the organization. These fronts can be thought of as the critical management systems that drive continuous improvement. They are the "strategic areas of activity" that are mentioned in the second component of the GSS. The word "front" was used to call to mind images of a battle because most of today's organizations can identify with the analogy. As in a war, if one of the fronts gets too far ahead or too far behind the others, it risks getting cut off or jeopardizing the entire campaign. In this way, we can clearly see that the fronts are not independent of one another. Movement in one front may be associated with concurrent movement in others, or the movement of one front may not be able to be realized until appropriate progress has been made in another.

The eight fronts[3] identified by Sink and Monetta's model are: planning; infrastructure; culture; measurement; education, training, & development; motivation/rewards & recognition; politics; and technology.

Planning: This front is listed first because it is often the lead front. The issue with the area of planning is not whether something is being done, but rather what is being done and how it is gone about. This front includes managing the relation between strategic plans, business plans, performance improvement plans, staffing & training plans, etc. The process by which the plan is created is as important as the plan itself.

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[3] Much of the discussion of the eight fronts is paraphrased from Sink & Monetta (1992)

Infrastructure: Involves management of the formal and informal organizational structures including definition of individual roles, responsibilities, and accountabilities. Often, the infrastructure for organizational improvement is not well developed, particularly for improvement efforts that span multiple levels or cut across the organization. Significant organizational improvement can be realized by addressing cross-functional improvement efforts.

Culture: Management of group identity as well as internal values and beliefs. Values guide, influence, and shape behavior and are therefore important to manage. Sometimes culture is more of an outcome resulting from activities on other fronts.

Measurement: This front focuses on enhancing the extent to which an organization's measurement system(s) supply decision makers with relevant and timely information to support decisions and actions for strategic and day to day management as well as a continuous performance improvement effort.

Education, Training & Development (ET&D): It is readily apparent that the development of employees, both personally and professionally, will be crucial to organizations of the future. This front involves the assessment of ET&D needs as well as the design, development, implementation and evaluation of the ET&D required to provide employees with the necessary knowledge, skills, and behaviors.

Motivation/Rewards & Recognition: Addresses the promotion of employee performance through both financial and non-financial means. It comprises much more than the management of salaries, performance bonuses, incentives, and gainsharing. It addresses non-financial forms of recognition, formal as well as informal, and recognizes them as powerful factors in the creation of the significant levels of performance required by a continuous improvement effort.

Politics: Politics is playing an increasingly crucial role in organizational performance. Organizations must effectively manage the demands exerted on them by regulators, parent organizations, stockholders, critics, customers, suppliers, competitors and control groups among others. Additionally, change masters must manage internal critics, the some 30 percent or so, that have a vested interest in maintaining the status quo.

Technology: The focus of this front is on "the ways of getting things done." It involves the methods and the means by which we use technology to continually improve performance including organizational policies, procedures, hardware, software, and machines.

Collectively, these eight fronts represent the critical management sub-systems, or strategic areas of activity, that must be managed in a strategic, integrated, and comprehensive manner. They must be managed along with a review of the past / present and an improvement plan for the future in order to achieve a successful continuous improvement effort.

2.2 Hoshin Kanri

The early 1970's marked the beginning of a period of change for American organizations. The United States, which had once dominated world markets with its manufacturing capability, was now being faced with a most unexpected competitor. The Japanese, whose products had in the past stood for poor quality, were now producing goods that were of better quality and selling at lower prices than their American counterparts. What had happened to cause this dramatic turnaround?

Following World War II, statistical quality control (SQC) methods were brought over from the United States along with people to teach them; among them, W. Edwards Deming and Joseph Juran. SQC, which originally focused on production, naturally evolved in Japan into Total Quality Control (also known as Total Quality Management), which incorporated statistical techniques throughout the entire system. "Deming taught engineering quality methods, Juran taught managers, foremen were taught in 1960, production workers in 1962, in 1965 all employees were included in the new concept of TQC, and suppliers were involved in 1970" (King, 1989). This "deployment" of quality methods down through the organization required a means of securing quality accountability at all of these various levels. Thus, a quality management system unique to Japan developed, one component of which is today known as Hoshin Kanri.

2.2.1 Understanding the Terminology

"The word *Hoshin*, is composed of two Chinese characters: *ho* and *shin*; *ho* meaning method or form, and *shin* meaning shiny needle or compass. Taken together, the word *Hoshin* means a methodology for strategic direction taking" (Akao, 1991). *Kanri* means management or control. Operationally, Hoshin Kanri is "a systems approach to the management of change in critical business processes" (Akao). It's a

component of TQM that allows an organization to set its strategic direction and then remain focused on that strategy in order to achieve organizational breakthroughs.

It should be noted that there are several different terms in the literature that refer to Hoshin Kanri. It is commonly translated as policy deployment, but is also known as Hoshin planning, policy management, management by policy, or target and means management. Throughout the remainder of this section I will use Hoshin Kanri except when explaining a figure that uses one of these other terms.

2.2.2 Disciplined Process and Methods

Hoshin Kanri is actually a disciplined planning process combined with a set of fact-based/participative methods that focus on consistently achieving a set of core objectives. It's this combination of process and methods that's the key to Hoshin Kanri. These methods encourage fact-based decision making, which eliminates at least some of the inherent manager to manager variability that threatens the successful deployment of plans.

In an attempt to find the "best" Hoshin Kanri process model, GOAL/QPC reviewed a half dozen different models that detailed specific process steps. What they found was that while each was slightly different, the core process remained surprisingly consistent. This "core" process is illustrated in Figure 2-3. One of the major reasons Hoshin Kanri is so successful is that while the process is very disciplined, it is at the same time able to be both flexible and responsive.

A long-term *vision* is first developed with a complete understanding of the organization and its environment. One method of creating this understanding is Organizational Systems Analysis (OSA). OSA "is intended to provide and encourage a detailed analysis of the organizational system for which the plan is being developed" (Sink & Tuttle, 1989). A *3-5 Year Plan* is then developed focusing on the gap between

"where we are" and "where we want to be" (vision). Next, *One Year Objectives* are developed in order to break the 3-5 Year Plan down into a few key objectives that must be accomplished this year. The *Deployment of Objectives and Development of Plans* is then accomplished by involving the key departments/functions in the development of strategies and the planning of resources to achieve the one year objectives. These strategies and plans are then *implemented* by the appropriate departments/functions and *reviewed regularly*. The organization's overall progress is then *reviewed* about 9 months into the fiscal year to determine if the objectives will be achieved and whether they need to be changed for next year.

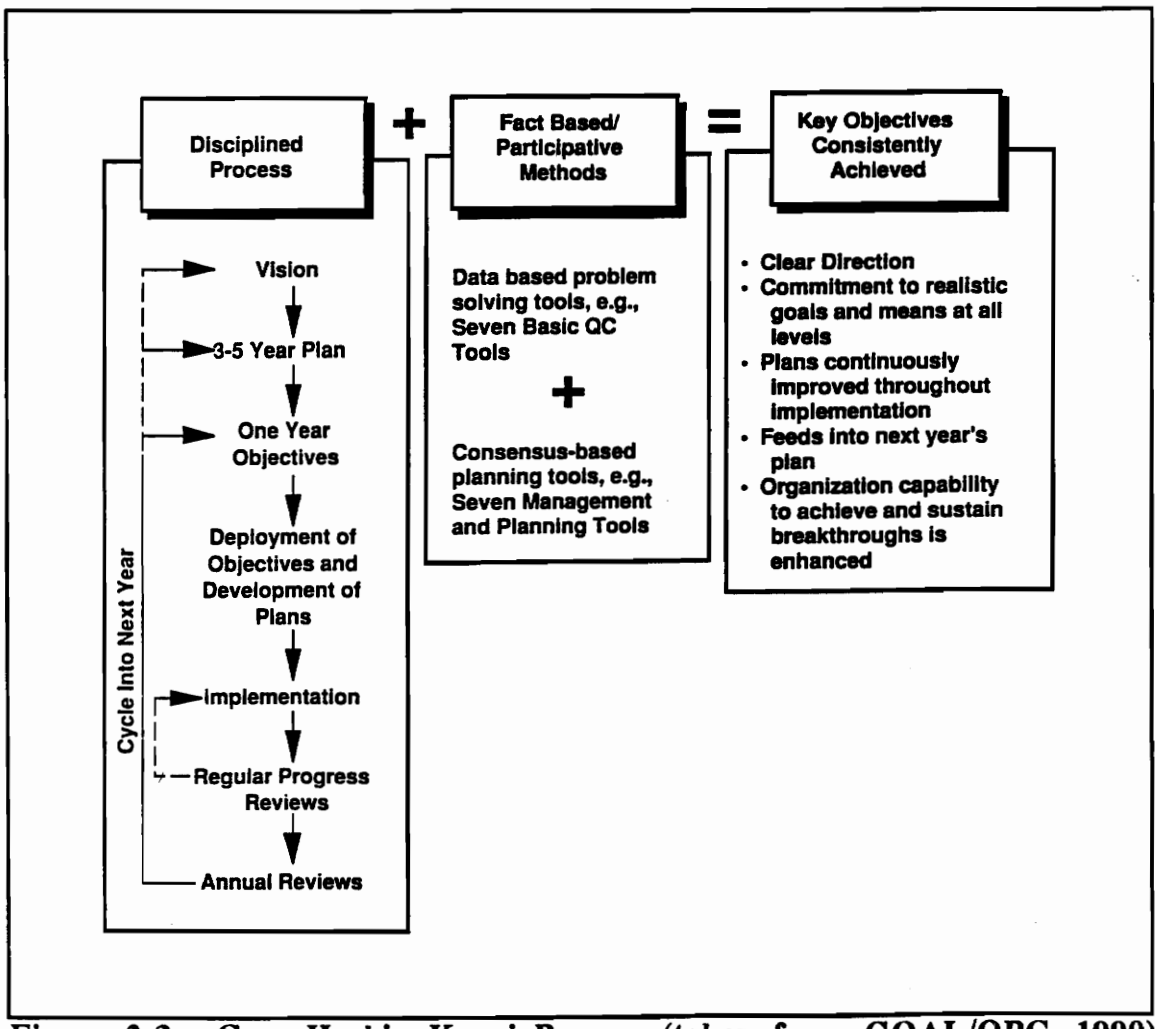

Figure 2-3: Core Hoshin Kanri Process (taken from GOAL/QPC, 1990)

In addition to a disciplined yet flexible process, Hoshin Kanri provides a number of helpful methods and tools. These methods/tools of Hoshin Kanri are comprised of data-based problem solving tools, consensus-based planning tools, alignment tools, and control items. Together, they identify and focus the organization's resources on a set of key objectives to ensure that these objectives are consistently achieved.

2.2.3 An Interrelated System

King (1989) points out that in order to understand Hoshin Kanri, one must also understand TQM, the management system of which Hoshin Kanri is a part. There are four major components of TQM as described by King: A Customer-Driven Master Plan, Hoshin Planning, Daily Control, and Cross-Functional Management.

2.2.3.1 Customer-Driven Master Plan

At the heart of the TQM wheel is a master plan that focuses on the customer. "This includes the organization's 5-10 year plan, rooted in its customer. The plan includes how the company will transform itself over the next 5-10 years to be a market leader in its area of specialty. The master plan focuses on product, organizational effectiveness, and in many organizations, profit. It's the strategic plan, if you will, rooted in the customer" (King, 1989).

2.2.3.2 Hoshin Planning

Japanese TQM operates at two levels. The first level at which it operates is the "Hoshin" or strategic planning level. Hoshin planning is the system that orchestrates organizational breakthroughs and innovation. These represent step-function improvements as opposed to the continuous improvement efforts of daily control that

will be addressed next. Hoshin planning identifies these areas that need step-function improvement and makes sure all the necessary people are involved. It helps top management identify what direction the organization needs to take based on the customer-focused master plan. Hoshin planning serves as the information loop that allows the organization to be flexible in its response to the dynamic business environment.

One of the crucial purposes Hoshin planning serves is to vertically align the organization. That is, it maximizes the focus of the organization as a whole (from top management to line employees) on a few key strategic initiatives. This vertical alignment is due in large part to the participative nature of Hoshin planning. Figure 2-4 illustrates how a significant portion of the organization is involved in the planning process, creating not only a stronger plan but also one that is more widely accepted and supported.

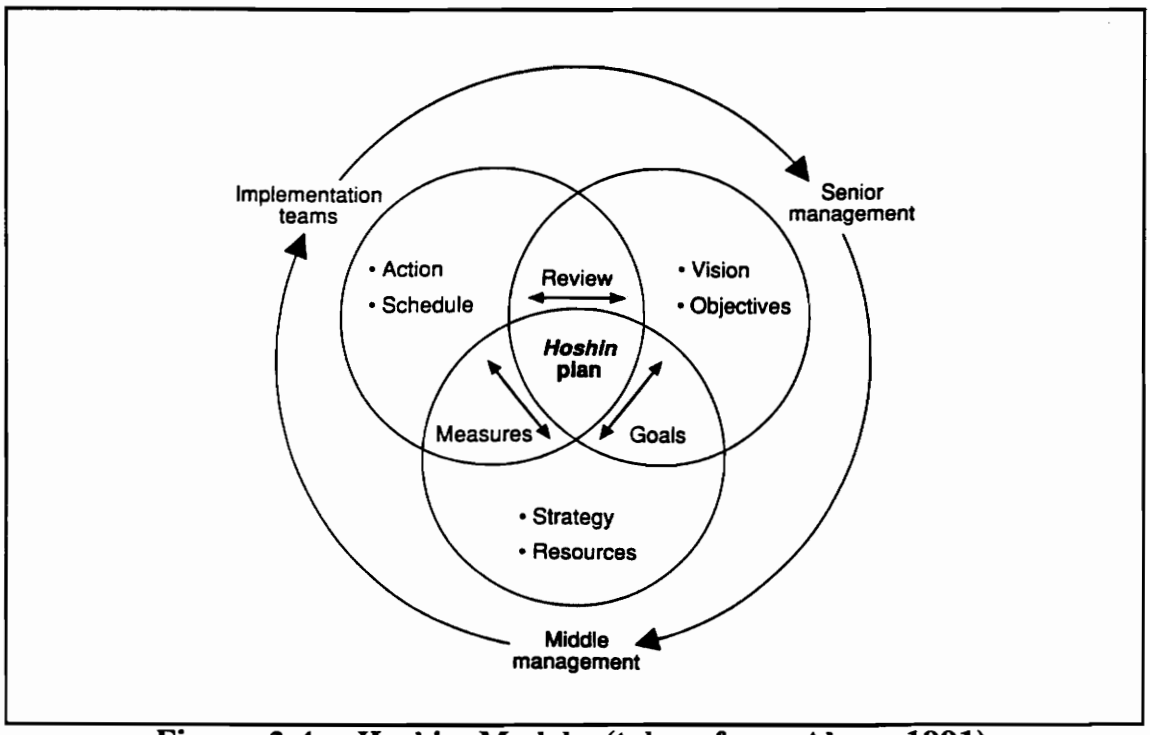

Figure 2-4: Hoshin Model (taken from Akao, 1991)

Movement of the Hoshin Kanri process is generally from senior management to the implementation teams. Senior management begins by developing the organizational vision and key strategic objectives. They identify the direction they feel the organization needs to take based on the customer-focused master plan, assessment of the external environment, and feedback on the company's previous year's performance. They answer the question "what needs to be done?" In terms of the "core" process described earlier, they develop the *Vision* and the *3-5 Year Plan.*

The senior management and middle management levels then play "catchball" or negotiate (represented by the two-way arrows in Figure 2-4) the setting of shorter-term goals to accomplish these long-range, strategic objectives. Next, strategies to achieve the goals are developed and necessary resources identified. This represents the *One Year Objectives* and *Deployment of Objectives and Development of Plans* steps of the "core" process.

Now middle management plays catchball with the implementation teams in order to develop performance measures that will track progress toward accomplishment of the strategies. Finally, action plans and implementation schedules are developed by the implementation teams. This is further *Deployment of Objectives and Development of Plans* and *Implementation.*

The review phase is used to assess the progress of the implementation teams as well as the success of the planning system. This information is then fed into the following year's development of key objectives. In this way, we can see that Hoshin planning is actually the application of the Plan-Do-Check-Act (PDCA) cycle to the planning and execution of key organizational objectives. This represents both the *Regular Process Reviews* by the teams as well as the *Annual Review.*

2.2.3.3 Daily Control

The second level at which Japanese TQM operates is daily control or the daily activity level. This involves the application of the PDCA cycle to daily activities in order to bring them under control (make them stable) and then to focus on continuous improvement. The purpose of daily control is to optimize daily performance through continuous improvement and standardization. In effect, the cycle of daily control could be considered the Standardization-Do-Check-Act (SDCA) cycle (Akao, 1991). Hoshin planning is used to make step-function improvements to current performance levels, while daily control is used to maintain and control these improved levels. The two are interrelated.

2.2.3.4 Cross-Functional Management

Cross-functional management (CFM) is the management of improvement efforts across functions or departments in order to achieve the organization's strategic objectives. Akao (1991) defines CFM as "control activities that include planning for individual business elements like quality, cost, and delivery from a companywide (or business group) point of view." It deals with the horizontal activities in an organization and addresses the horizontal coordination required by Hoshin planning. The purpose of CFM is to maximize the coordination and cooperation among all related functions.

The implementation teams described in Figure 2-4 are typically cross-functional. An infrastructure needs to be developed to coordinate the efforts of these teams. The tremendous increase in communication and cooperation among departments, functions, and teams needs to be managed and all of the plans submitted by the implementation teams need to be reviewed for cross-functional or departmental conflicts.

2.2.4 Benefits of Hoshin Kanri

This section is simply an attempt to summarize the many benefits of Hoshin Kanri that have been addressed in the literature. Hoshin Kanri:

- Creates an established process to execute breakthroughs year after year. This system for planning and implementation is disciplined, but at the same time is able to be both flexible and responsive. This process is then supplemented with a set of fact-based and participative methods for improved decision making. Every manager and employee knows the process by which to manage improvement efforts because they are provided with a clear set of process steps and useful tools/methods.

- All managers and employees understand how their work relates to the strategic (Hoshin) and tactical (daily control) operation of the organization.

- Creates "buy-in" and commitment to both the direction and implementation paths chosen. Hoshin Kanri capitalizes on widespread participation through the "catchball" process as well as a variety of other consensus-based planning methods/tools that supplement its disciplined planning process. Every step of Hoshin Kanri allows all key participants the opportunity to develop realistic targets and means to achieve each key objective. As is always the case, "buy-in" is a result of *true* participation.

- Provides a common focus throughout the organization. Not only is there more "buy-in" throughout the organization, but there is vertical alignment as well. That is, Hoshin Kanri focuses the efforts of an organization's various hierarchical levels on a few key strategic objectives. It tells every manager and employee where they should be directing their efforts to be aligned with the strategic direction of the organization.

- Increases interdepartmental cooperation. In addition to vertical alignment, Hoshin Kanri establishes a system of horizontal coordination. First, the deployment phase requires planners to think through and identify all of the key

participants both vertically and horizontally. Also, there is a team that reviews all submitted plans for cross-functional or departmental conflicts. This is all supplemented with an improved cross-functional communications system/network.

- Gives leadership a mechanism to understand the key problem areas in a company. This is due to the interrelatedness of Hoshin planning and daily control. The feedback from the daily control PDCA cycle is input into the planning phase of the Hoshin planning PDCA cycle.

- Creates quicker and more accurate feedback loops. Since performance in these key strategic areas is monitored on a daily basis and visible management systems are used, feedback is much faster. Also, data-based problem solving tools allow for more accurate input into the decision making process.

- Draws upon and reinforces the PDCA cycle through Monthly Progress Reviews, Presidential Audits, etc. These reviews focus on both the process and results.

"Imagine an organization that knows what customers will want five to ten years from now and exactly what they will do to meet and exceed all expectations. Imagine a planning system that has integrated PDCA language and activity based on clear, long-term thinking, a realistic measurement system with a focus on process and results, identification of what's important, alignment of groups, decisions by people who have the necessary information, planning integrated with daily activity, good vertical communication, cross-functional communication, and everyone planning for himself or herself, and the buy-in that results" (King, 1989). That is Hoshin Kanri, one component of a Japanese quality management system, and it's a major reason why so few Japanese organizations encounter the problems with strategic planning that U.S. organizations do.

2.3 Change Management

Clearly, change has become a way of life. No American organization has escaped the effects of change, no business has been spared when it comes to having to confront change in some form or another. Yet many organizations are having significant trouble dealing with change, they are failing to effectively *manage* change. This section is meant to discuss some of the responses people have to change and introduce a few of the models that have been proposed to manage those responses.

2.3.1 Responses

Different people have different responses to change. Some people are frustrated with the lack of change while others are quite comfortable with and adapted to the status quo (Mohrman et al., 1989). Therefore, when a change occurs, people perceive themselves as either "winners" or "losers." The winners, those that were frustrated with the lack of change, see new opportunities and are inspired by the change. The losers, those that were comfortable with "the way things used to be," are frightened and resistant to the change. To manage change effectively, organizations need to gain commitment from both groups. Gaining commitment from the winners is easy, gaining commitment from the losers is more of a challenge. The losers must see the rationale and "fairness" behind the changes. They want to know what is going to happen to them in the "new" organization. They must be reassured that things will be better than they used to be, their fears of the new and unknown must be addressed.

2.3.2 Models

A number of different models have been proposed to address the requirements of managing large-scale change. The two that I will briefly introduce are Lewin's three stage model of change and Belasco's change model.

2.3.2.1 Lewin

Lewin (1951) proposed a three stage model for effectively managing organizational change. The three stages were: unfreezing, change, and refreezing. The first stage, unfreezing, prepares the organization to change. It is the point at which people must become aware of the need to change. If people are satisfied with the status quo, you will have a difficult time making the changes stick. The key factor in unfreezing is to make employees understand the importance of changing and how it will affect their jobs. They must become dissatisfied with the way things currently are.

The second stage involves making the actual change. It may mean installing some new equipment, restructuring the organization, transitioning to a new style of planning - anything that alters existing relationships or people's current activities.

The final stage, refreezing, involves making the changes relatively permanent. People must begin to use the new behavior, skills, processes (or whatever the change involved) in their everyday activities. The changes have to be "reinforced" so that they become standardized and integrated into people's daily routines. Without this stage, people might slip back into the old way of doing things because it's a lot easier and more familiar to them.

2.3.2.2 Belasco

Belasco describes four stages to managing the change process: Build a sense of urgency, create a clear tomorrow, develop a migration path, and reinforce the new behavior. The first, build a sense of urgency, is similar to Lewin's unfreezing stage. Belasco points out that "people don't change without pain -- lots of it! -- and anxiety -- lots of it! Pain and anxiety create the urgency to change, which creates the empowerment to change. Don't create this urgency, and people feel powerless to

change." He argues that people will not change until the pain of the status quo is greater than the pain associated with changing. This stage is where the organization must associate pain, or dissatisfaction, with the status quo.

During the second stage, the organization must create a clear, simple to understand vision of the future. This vision represents the "promised land" that everyone is working toward. In order to convince people to suffer through the pain associated with change, they must be able to see a better tomorrow.

Develop a migration path, Belasco's third stage of managing change, involves showing employees exactly what it is that is required of them to reach the "promised land." He points out that "we learn by copying. Little boys watch their fathers for the 'correct' male behavior and imitate them. Little girls watch their mothers and shape their behavior accordingly." At this stage, top management needs to present a clear picture of what it wants. Employees should be shown exactly what is "desired" of them and then given the permission to do it. It is important that leaders model the "desired" behavior since people, as was pointed out, will "copy" what they do.

The final stage, reinforce the new behavior, is similar to Lewin's refreezing stage. The newly implemented change must be consistently reinforced in order to make sure it becomes a part of people's everyday activities.

2.4 What is Research?

The following section is intended to examine the nature of research. It seeks to answer the following questions: what are some of the various definitions of research, what are some dimensions of research, what are some models of research, and what research method is being utilized in this study?

2.4.1 Definitions

Leedy (1985) defines research as "the manner in which we attempt to solve problems in a systematic effort to push back the frontiers of human ignorance or to confirm the validity of the solutions to problems others have presumably resolved." Thomas Kuhn (1962) adds that there is no such thing as research without the existence of a paradigm. "The decision to reject one paradigm is always simultaneously the decision to accept another...To reject one paradigm without simultaneously substituting another is to reject science itself." Research is the means by which these existing paradigms are either confirmed, advanced, or replaced.

This is similar to the concept of "map-making" presented by Peck (1978) in his description of one of his components of discipline, dedication to truth. He points out that "the more clearly we see the reality of the world, the better equipped we are to deal with it...Our view of reality is like a map with which to negotiate the terrain of life. If the map is true and accurate, we will generally know where we are, and if we have decided where we want to go, we will generally know how to get there. If the map is false and inaccurate, we generally will be lost." This process can involve charting new territory, verifying our existing maps or revising existing maps. I feel that research is a structured process for helping us create, verify and revise our maps of the way we see reality. In other words, it involves creating, verifying or changing our paradigms, our perceptions of the way the world is.

2.4.2 Dimensions

Research can be classified along a number of different dimensions. Two of these dimensions that I will discuss here are: (1) the "purpose" of the research; and (2) the "nature" of the research.

2.4.2.1 The Purpose of Research

The first dimension I chose to classify my research along was the "purpose" or the type of research. Patton (1990) presents a taxonomy of the various types of research and research purposes as shown in Table 2-1. With respect to this taxonomy, my research falls under applied research. Applied research seeks to better understand a phenomenon so that a specific and recognized need is addressed through the generation of potential solutions. The purpose of this research is to better understand the phenomenon of strategic planning implementation and deployment, in particular the maintaining of momentum during implementation and deployment. It is hoped that, through a better understanding of this phenomenon, I will be able to give American organizations some guidance with respect to a specific need -- namely, getting strategic plans off the shelves and into the hands of those making daily decisions and actions that affect the organization.

2.4.2.2 The Nature of Research

Yin (1989) describes a second dimension of research: the "nature" of the research. Research can be of an exploratory, descriptive, explanatory, and/or predictive nature. The researcher may wish to explore the various constructs, variables and interrelationships of a phenomenon or simply describe them. He/she may wish to explain these interrelationships or attempt to predict outcomes.

This research is both descriptive and exploratory. I would ultimately like to describe (with respect to my sample of organizations) a way for American organizations to better maintain momentum during implementation and deployment. That is, I would like to provide American organizations with some guidance as to how to address the problem. However, I must first explore the "root causes" of why organizations struggle at maintaining momentum in the first place. The two research questions that I

will explore are, "what are the root causes leading an organization to struggle with maintaining momentum ," and "do organizations with a Hoshin-style planning system struggle with these root causes less than Non-Hoshin organizations?"

Table 2-1: A Taxonomy of Research Purposes (Taken from Patton, 1990)

Types of Research	Purpose	Focus of Research	Desired Results	Desired Level of General-ization	Key Assumptions
Basic Research	Knowledge as an end in itself; discover truth.	Questions deemed important by one's discipline or personal intellectual interest.	Contribution to theory.	Across time and space (ideal).	The world is patterned; those patterns are knowable and explainable.
Applied Research	Understand the nature and sources of human and societal problems.	Questions deemed important by society.	Contribution to theories used to formulate problem-solving programs and interventions	Within as general a time and space as possible, but clearly limited application context.	Human and societal problems can be understood and solved with knowledge.
Summa-tive Evaluation	Determine effectiveness of human interventions and actions (programs, policies, personnel, products).	Goals of the intervention.	Judgments and generalizations about effective types of interventions and the conditions under which those efforts are effective.	All interventions with similar goals.	What works one place under specified conditions should work elsewhere.
Formative Evaluation	Improving an intervention: a program, policy, organization, or product.	Strengths and weaknesses of the specific program, policy, product, or personnel being studied.	Recomm-endations for improvements	Limited to specific setting studied.	People can and will use information to improve what they're doing.
Action Research	Solve problems in a program, organization, or community	Organization and community problems.	Immediate action; solving problems as quickly as possible.	Here and now.	People in a setting can solve problems by studying themselves.

2.4.3 A Model of Research

Numerous models in the literature attempt to explain the research process. One that I have found to be extremely valuable in understanding research is a model of the scientific process presented by Wallace (1971). According to Wallace, the scientific process can be described as involving five principal information components whose transformations into one another are controlled by six principal sets of methods, as displayed in Figure 2-5. The following quote from the author helps to clarify the various components of the figure:

> *Individual observations are highly specific and essentially unique items of information whose synthesis into the more general form denoted by empirical generalizations is accomplished by measurement, sample summarization, and parameter estimation. Empirical generalizations, in turn, are items of information that can be synthesized into a theory via concept formation, proposition formation, and proposition arrangement. A theory, the most general type of information, is transformable into new hypotheses through the method of logical deduction. An empirical hypothesis is an information item that becomes transformed into new observations via interpretation of the hypothesis into observables, instrumentation, scaling, and sampling. These new observations are transformable into new empirical generalizations (again via measurement, sample summarization, and parameter estimation), and the hypothesis that occasioned their construction may then be tested for their conformity to them. Such tests may result in a new informational outcome: namely, a decision to accept or reject the truth of the tested hypothesis. Finally, it is inferred that the latter gives confirmation, modification, or rejection of the theory.*

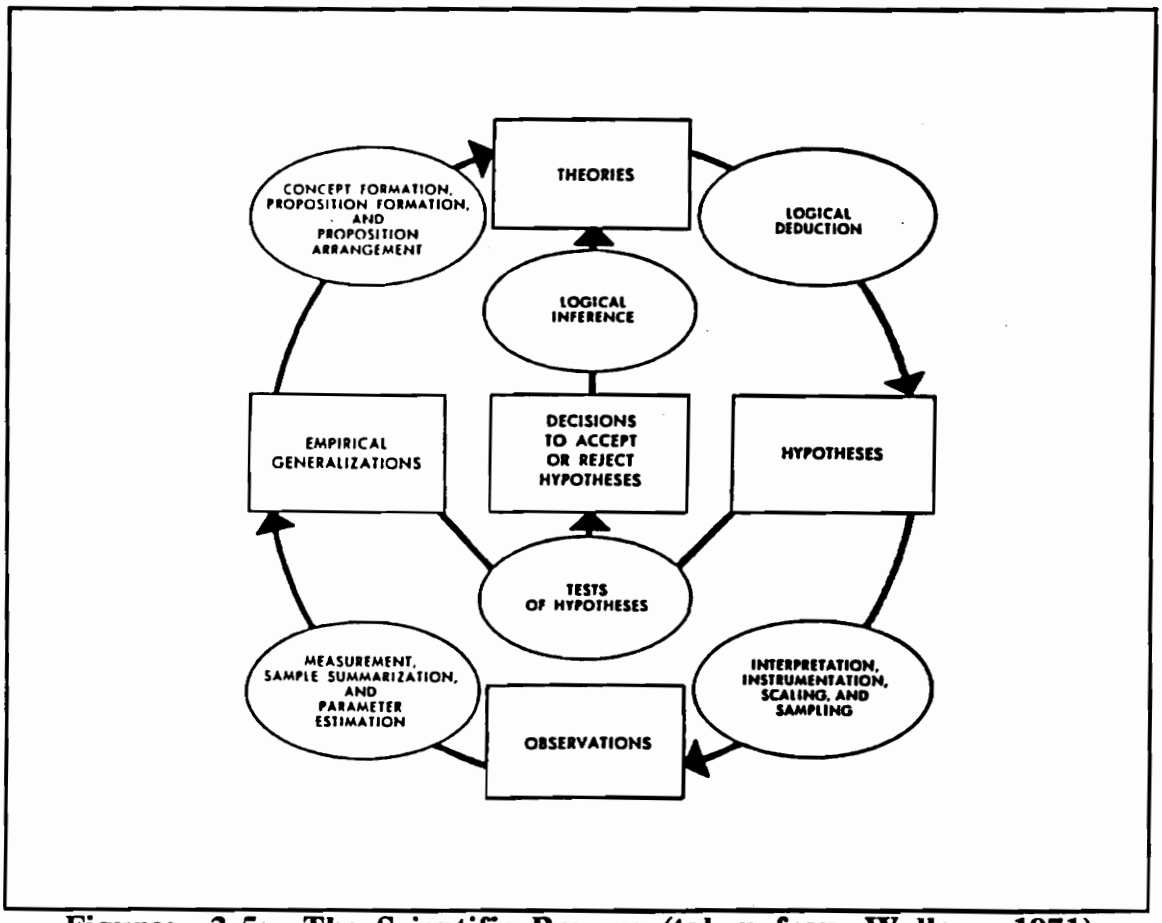

Figure: 2-5: The Scientific Process (taken from Wallace, 1971)

Wallace takes care to point out that the research process is not always as structured as the figure makes it out to be, research is often not this sequential. He goes on to sub-divide Figure 2-5 into four overlapping halves as shown in Figure 2-6. The halves represent some of the more "conventional" terms that we associate with research. The left half represents "induction," or the moving from specific observations to a general theory. The right half is "deduction," or the moving from general theories to specific observations. The top half represents what is often referred to as "theorizing" while the bottom half represents "empirical research."

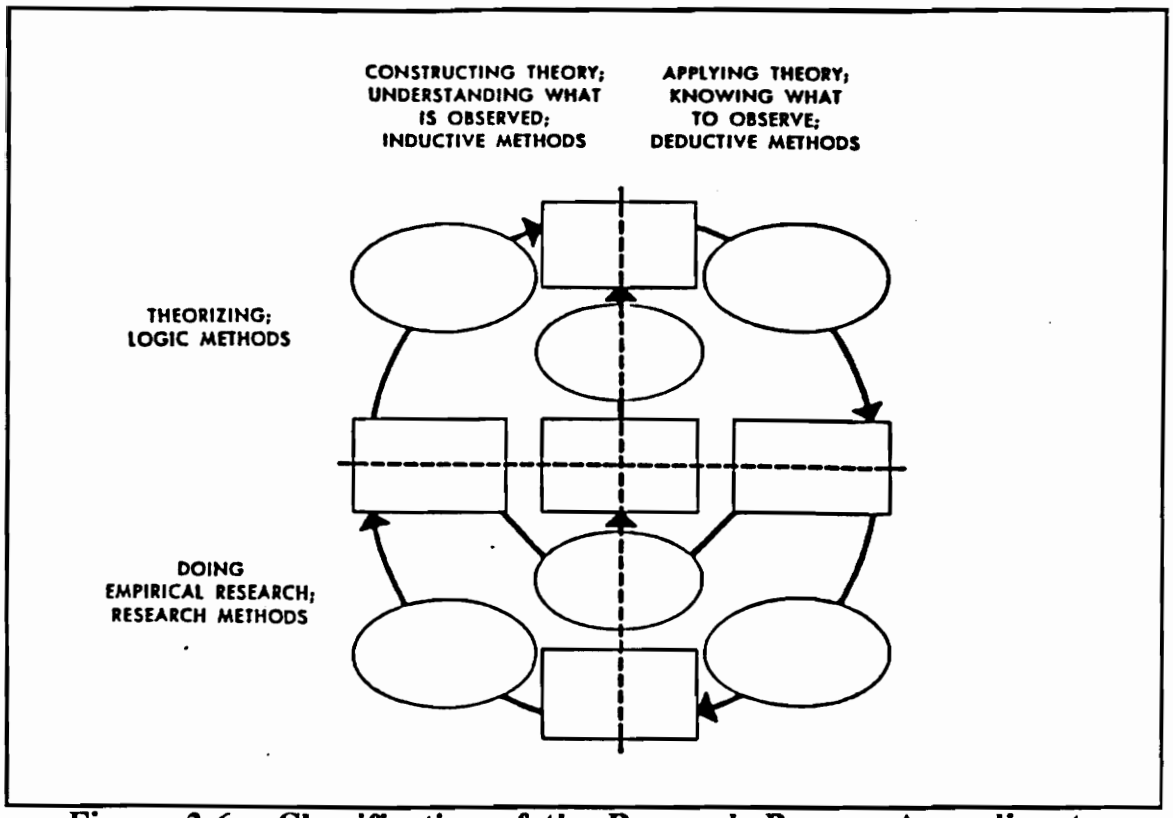

Figure 2-6: Classification of the Research Process According to Some Conventional Terms (taken from Wallace, 1971)

2.4.4 Research Methods

There are a number of different research methods available to the researcher. A research method is a systematic process to collect and analyze data. Table 2-2 helps to explain some of the various methods. This research study was a "quasi-experimental" design because random selection of the participants was not possible. Furthermore, the two groups being compared in the test of the research hypothesis have extremely small samples sizes. Therefore, as I was interpreting the data and drawing conclusions, I had to take into account some of the variables I was unable to control for.

Table 2-2: Research Methods (taken from Leedy, 1985)

Method	Characteristics of the Method and the Research Goals
Action Research	The approach in action research is to do something to see if it works. Will playing video games improve eye-hand coordination in typing? Method: Get a bank of computers, a group of typists; set up a training session. See if typing skills improve.
Case and Field Study Research	A type of descriptive research in which data is directly gathered from individuals (individual cases) or social or community groups in their natural environment for the purpose of studying interactions, attitudes, or characteristics of individuals or groups. A case study is "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used" (Yin, 1989). A case study is a research strategy which focuses on understanding the dynamics present within single settings (Eisenhardt, 1989).
Descriptive (or Normative) Survey	The descriptive survey method, also called the normative survey method, is employed to process the data that come to the researcher through observation. This method looks with intense accuracy at the phenomena of the moment and then describes precisely what the researcher sees.
Developmental	This type of research is an observational-descriptive genre of investigation that usually stretches over a period of time and is frequently called "the longitudinal study." Trend studies and projections of future trends are sometimes considered as developmental research projects.

CHAPTER THREE: RESEARCH METHODOLOGY

The research methodology maps out the study's planned activities and provides a description of who and what is involved with each. It represents the master plan or "protocol" for accomplishing the study's research objectives.

3.1 Unit of Analysis

The unit of analysis for this research was the "organizational" level. That is, I was interested in examining the implementation and deployment of strategic planning efforts throughout the *entire* organization, not just in one department or at one organizational level (i.e. not just the top-management level). Therefore, the participants were asked to respond to the questionnaires with respect to the entire organization rather than just their own subdivision.

3.2 Participants

Participants were selected based on their knowledge of the subject, my access to them, and their willingness to participate. Table 3-1 outlines the list of participants. Please note that the names of the actual participants have been removed in order to protect their anonymity (as was promised to them prior to conducting the study).

There are many factors to be considered when choosing a sample size. Often times, a sample size is chosen so as not to be "unduly expansive" or require an unreasonable amount of effort. In actuality, it was difficult for me to identify potential participants and I was actually lucky to have gotten as many to participate as I did.

Table 3-1: List of Participants

Name	Organization	Classification
NH - 1	Department of Defense	Non-Hoshin
NH - 2	Department of the Navy	Non-Hoshin
NH - 3	Norfolk Naval Shipyard	Non-Hoshin
NH - 4	Norfolk Naval Shipyard	Non-Hoshin
NH - 5	Department of the Navy	Non-Hoshin
NH - 6	National Grocers	Non-Hoshin
NH - 7	National Grocers	Non-Hoshin
NH - 8	Department of the Navy	Non-Hoshin
HP - 1	Dana Corporation	Hoshin-Practitioner
HP - 2	Dana Corporation	Hoshin-Practitioner
HP - 3	Canon of Virginia	Hoshin-Practitioner
HP - 4	Canon of Virginia	Hoshin-Practitioner
HP - 5	Virginia Fibre	Hoshin-Practitioner
HP - 6	Our Lady of Lourdes	Hoshin-Practitioner
HP - 7	Intel	Hoshin-Practitioner
HP - 8	Southwest Texas Hospital	Hoshin-Practitioner
HT - 1	Virginia Tech	Hoshin-Theorist
HT - 2	Virginia Tech	Hoshin-Theorist
HT - 3	GOAL/QPC	Hoshin-Theorist
HT - 4	GOAL/QPC	Hoshin-Theorist
HT - 5	Department of Defense	Hoshin-Theorist
HT - 6	Department of Energy	Hoshin-Theorist

3.2.1 Classifications

This study involved three groups or "classifications" of participants. The first group (classified as "Non-Hoshin") was comprised of top managers that had been involved in the strategic planning efforts of their respective organizations. These organizations did **not** have a planning system similar to Hoshin Kanri. The second group ("Hoshin-Practitoner") was comprised of top managers in organizations **with** a Hoshin-style planning system. The third group was made up of "experts" in the field of strategic planning and policy deployment. They were classified as "Hoshin-Theorist" and were included in the study because it was hoped that their knowledge in the area of strategic implementation and deployment would help me to gain yet another perspective of the problem.

3.2.2 Classification Criteria

In order to distinguish between the two groups that would be used in the test of this study's research hypothesis, a set of criteria needed to be developed in order to "classify" organizations as either "Non-Hoshin" or "Hoshin-Practitioner." These criteria are outlined in Table 3-2. Classifications of organizations were made in a "gestalt" fashion using expert opinion. "Hoshin-Practitioner" organizations were those organizations that met these criteria (for the most part) while those organizations that did not were classified as "Non-Hoshin." In essence, the difference between the two classifications lies in the methodology each uses to complete its Plan-Do-Study-Act (PDSA) cycle of continuous improvement.

Table 3-2: Organizational Classification Criteria

Criteria	Operational Definition
Participation	Planning process ensures that multiple levels of the organization are "truly" involved in the planning efforts. The organization has "3-level meetings" that help involve lower levels in the planning effort.
Vertical alignment	Mechanisms exist to ensure that the decisions and actions of individuals at all levels are focused on achieving the same organizational goals. Strategic objective "matrices" are cascaded both downward and upward to focus the organizations efforts.
Horizontal coordination	Coordinating mechanisms exist to integrate and manage plans across departments / functional areas.
Visible management systems	The organization employs a visible management system. Decisions and actions are based on facts and data that are visible to everyone, not just those making the decisions.
Accountability	Accountability for implementation is assigned directly to individuals and/or groups and mechanism(s) exist to control that accountability.
Strategic planning and daily work linkages	Formal mechanism(s) exist for integrating the organization's planning efforts with individuals' daily work activities.
Review System	Regular reviews (focusing on both the planning process and results) ensure that implementation is successful over the long-term.
Quality Tools	Widespread understanding and use of the theories and tools of quality.

3.3 Data Collection

The following section describes the procedure that was used to collect the data, the timeframe that was involved, and the communication medium that was utilized.

3.3.1 Procedure

The procedure that was used to collect data was a five-round Delphi. "The Delphi Technique is a method for the systematic solicitation and collation of judgments on a particular topic through a set of carefully designed sequential questionnaires interspersed with summarized information and feedback opinions derived from earlier responses" (Delbecq, Van de Ven & Gustafson, 1975). The five rounds were arranged as follows:

Pre-work	- All pre-work necessary to undertaking the study
Round 1	- Initial identification of root causes
Round 2	- Clarification and further identification of root causes
Round 3	- Ranking of root causes
Round 4	- Identification of the "degree" to which each of the participants' organizations struggle with each of the root causes
Round 5	- Collection of data regarding the participants' reactions to the results and the study in general

Each of these rounds will now be discussed in further detail. A copy of the original materials that were sent to the participants in each of the five rounds can be found in Appendix C of this document.

3.3.1.1 Round One

The objective of Round 1 was simply to have the participants generate an initial list of root causes. The task statement for the first round was as follows:

> *The first task will be for you to generate a list of "root causes" leading your organization to lose momentum during the implementation and deployment of its strategic planning, TQM, or other large-scale improvement efforts.*

The data that were collected were in the form of "bulletized lists" of root causes from each of the participants. These lists were aggregated into an overall list for each of the three groups and then items were combined as appropriate. Letters were assigned to the items (capital letters for the root cause and lower-case letters for sub-bullets) for identification purposes.

3.3.1.2 Round Two

The second round was intended to give the participants an opportunity to (1) identify items that they needed further clarification on; (2) identify items that they felt should be combined or uncombined; and (3) make additions to the list. The task statement read as follows:

> *<u>Step 1:</u> Your first task this round will be to look over the list of "root causes" generated in Round 1 and identify those that you need more clarification on. Please list these in the space provided on the response form.*
>
> *<u>Step 2:</u> Identify those items that you feel should be combined / uncombined. Please list these in the space provided on the response form and indicate the recommended action (i.e. B combined under A)*

Step 3: *Identify any root causes that you feel should be added to the list.*

Step 4: *Go through the entire list of root causes and identify the ones you feel are important. List these in the space provided on the response form. Next, circle the letters of the nine items you feel to be the most important root causes. In doing so, please select only from the root causes (represented by the capitalized letters A,B,C,..). If you wish to choose a bullet beneath a major heading (represented by lower case letters a,b,c..) as one of your "top nine," then please uncombine it first using the procedure described in Step 2.*

Step 5: *After you have chosen your "top nine" root causes, move through the following steps designed to initially rank and weight them.*

1. *From the selected nine, chose the most important and write the letter of that root cause next to the number 9 in the last column of the response form.*

2. *From the eight remaining items, chose the least important and write the letter of that root cause next to the number 1.*

3. *From the seven remaining items, choose the most important and write the letter of that root cause next to the number 8.*

4. *From the six remaining items, choose the least important and write the letter of that root cause next to the number 2.*

Continue on through this process, alternately selecting the most and least important items of those not already ranked. When you have finished, the nine items should be ranked from 1 to 9, with the most important getting a rank of 9 and the least important, a rank of 1. (This selection process is based on the principle that extremes are easier to judge than items in the center. Those items weighted 4 and 5 are probably rather close in importance.)

The data collected were in the form of "recommendations" from each participant as to which items needed further clarification, which ones should be combined or uncombined, and a list of any additional root causes they would like added to the list. Additionally, the results of the initial voting procedure were collected.

3.3.1.3 Round Three

The purpose of Round 3 was simply to allow the participants another chance to vote on their "top" root causes based on feedback they received from the previous round. The only data that was collected were the voting results from each participant as to their "top nine" root causes. The task statement read as follows:

> *Step 1: Go through the entire list of root causes and identify the ones you feel are important. List these in the space provided on the response form. Next, circle the letters of the nine items you feel to be the most important root causes. In doing so, select only from the root causes (represented by the capitalized letters A,B,C,..). Please realize that you are voting for all of the bullets underneath an item as well. As noted earlier, not everyone's suggested combinations could be incorporated, therefore compromises were made so that the list would reflect the opinions of the majority of the participants. If anyone has major problems with the way in which the items are combined, please contact me. PLEASE NOTE: Items have retained the same letter designations as in the previous round.*
>
> *Step 2: After you have chosen your "top nine" root causes, move through the following steps designed to initially rank and weight them.*
>
> *1. From the selected nine, choose the most important and write the letter of that root cause next to the number 9 in the last column of the response form.*

2. From the eight remaining items, choose the least important and write the letter of that root cause next to the number 1.

3. From the seven remaining items, choose the most important and write the letter of that root cause next to the number 8.

4. From the six remaining items, choose the least important and write the letter of that root cause next to the number 2.

Continue on through this process, alternately selecting the most and least important items of those not already ranked. When you have finished, the nine items should be ranked from 1 to 9, with the most important getting a rank of 9 and the least important, a rank of 1. (This selection process is based on the principle that extremes are easier to judge than items in the center. Those items weighted 4 and 5 are probably rather close in importance.)

3.3.1.4 Round Four

The fourth round of the Delphi in essence, asked each of the participants to identify the degree to which their organization struggles with each of the "top" root causes identified in the previous round. "Experts" were given guidance on how to respond -- in particular, I was looking for them to respond with respect to their experience across multiple organizations. An anchored Likert scale was used (See Figure 3-1). The task statement read as follows:

*Step 1: For each root cause listed on the response form, there is a scale that ranges from 1 to 5. Please circle a number indicating the degree to which you feel **your** organization struggles with that particular root cause. You must circle a number for each item. Please use the following upon which to base your responses:*

1 = My organization does not "struggle" at all with this root cause. That is, we have successfully managed this root cause and do not lose any momentum[4] during implementation and deployment because of it.

2 = We "struggle" slightly with this root cause.

3 = We "struggle" to a moderate degree with this root cause.

4 = We "struggle" quite a bit with this root cause.

5 = My organization extremely "struggles" with this root cause. We've completely failed at managing this root cause and lose significant momentum because of it.

Step 2: The "comments" section is intended to allow you to relate any knowledge and/or experience you have gained through your management of (or failure to manage) each of the root causes. Do you have any advice to offer others with respect to managing a particular root cause? What pitfalls can you point out? For example, if you circled a "1" on the scale for an item, are there any tips you can share that would help others manage that particular root cause as successfully as you did? What systems, programs, etc. do you have in place that have helped you succeed at this particular item? If you circled a "5" for an item, are there particular obstacles that you feel have prevented you from succeeding at it? What do you feel has caused you to struggle so much with that root cause?

Both quantitative and qualitative data were collected in Round 4. The quantitative data were the participants' responses to the Likert scales. The qualitative data were the comments they provided.

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[4] Please recall what is meant by "loss of momentum." If an organization were losing momentum with respect to its strategic planning or large-scale improvement effort, we would expect to see the following types of things:

- the "stalling" of an initiative or an intervention
- interventions increasingly taking longer than planned
- the "failure" of improvement efforts
- interventions not having the desired impact
- interventions that aren't of the desired quality

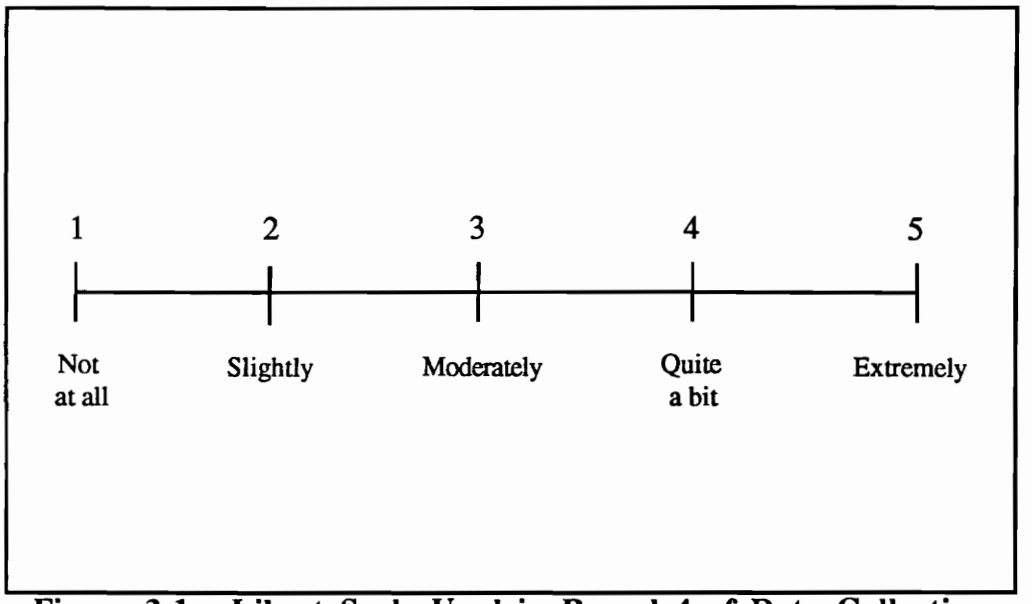

Figure 3-1: Likert Scale Used in Round 4 of Data Collection

3.3.1.5 Round Five

There were several pieces of data collected in Round 5. First, there were qualitative comments regarding the participants' reactions to the study. Additionally, two Likert scale responses were collected from each participant regarding the degree to which they felt the results were valid and the degree to which they were satisfied with the list of root causes that was generated by their group. Finally, participants were asked to indicate which of the "classification criteria" they felt described their organization. These data were collected for triangulation purposes. That is, I wanted to attempt to validate my classification of the organizations as either Hoshin or Non-Hoshin. The task statement for this round read as follows:

Step 1: On the response form, you will find two scales ranging from 1 to 5. These scales correspond to the two statements below. Please circle the number on the appropriate scale that most closely corresponds with your reaction to the following statements:

1. *I feel the results of this study are valid.*
2. *I am satisfied with the list of "root causes" generated by my group.*

Step 2: Please provide any additional comments you may have regarding either the validity of the results of this study or your satisfaction with the list of root causes that was generated by your group. Also, please feel free to provide comments regarding the methodology that was used to collect the data, the analysis of the data, or anything else concerning your participation in this study.

Step 3: For each of the seven criteria listed on the response form, please indicate, by circling the appropriate response, which you feel apply to your organization's planning efforts as a whole. *In other words, if the criterion only applies to one or two departments and not the entire organization, please circle "no."*

3.3.2 Timeframe

The timeframe for the administration of the data collection tasks is outlined in Table 3-3.

3.3.3 Communication Medium

The medium that was used to correspond with the participants was a fax machine (except for the Final Report which was mailed to all participants shortly after completion of the final data analysis).

Table 3-3: Timetable for the Data Collection Tasks

Day of Week	Date	Event
Friday	Jan. 17	Develop the Delphi question
Friday	Jan. 24	Selection of potential participants
Monday	Jan. 24	Letter of Invitation distributed to potential participants
Friday	Jan. 24	Classification of participants
Friday	Jan. 24	Preparation and test of materials for round one
Monday	Feb. 7	First round of Delphi sent to participants
Friday	Feb. 11	Deadline for return of round one responses
Wednesday	Feb. 16	Analysis and summary of round one responses
Friday	Feb. 18	Preparation and test of materials for round two
Monday	Feb. 21	Second round of Delphi sent to participants
Friday	Feb. 25	Deadline for return of round two responses
Wednesday	March 2	Analysis and summary of round two responses
Friday	March 4	Preparation and test of materials for round three
Monday	March 7	Third round of Delphi sent to participants
Friday	March 11	Deadline for return of round three responses
Wednesday	March 16	Analysis and summary of round three responses
Friday	March 18	Preparation and test of materials for round four
Monday	March 21	Forth round of Delphi sent to participants
Friday	March 25	Deadline for return of round four responses
Wednesday	March 30	Analysis and summary of round four responses
Friday	April 1	Begin final analysis
Friday	April 22	Preparation and test of materials for round five
Monday	April 25	Fifth round of Delphi sent to participants
Friday	April 29	Deadline for return of round five responses
Wednesday	May 4	Analysis and summary of round five responses
Friday	May 6	Generation and distribution of Final Report

3.4 Analysis of the Data

Data analysis attempts to "make sense of massive amounts of data, reduce the volume of information, identify significant patterns, and construct a framework for communicating the essence of what the data reveal" (Patton, 1990). The analysis of the data for this research study actually occurred in several stages. The first several stages of analysis resulted after the data were collected from each round. These analyses

involved a summarization of the responses to the previous task and the development of the subsequent round's materials. Once all of the necessary data had been collected, this study's research hypothesis was tested.

3.4.1 Round One

The analysis of the data from Round 1 involved the compilation of the data into three separate lists - one for each of the groups in the study. The Delphi technique calls for the facilitator to transfer items to the list exactly as they are received from the participants. It isn't the facilitator's job to wordsmith (to capture what he feels the participant "intended" to say), eliminate items because they don't belong, or to combine items at this point (unless it is plainly obvious from the operational definitions that they are indeed the same thing). I did take an initial cut at combining items, however, only for those items that it was obviously appropriate to do so. If there was any doubt as to whether the items were dealing with the same construct, they were not combined.

Once combinations had been made, letters were assigned to each of the root causes for identification purposes. Capital letters were assigned to the root causes themselves while lower case letters were assigned to items combined underneath a root cause.

3.4.2 Round Two

Operational definitions were supplied for all items that participants had requested further clarification on. All of the suggestions regarding combinations and/or uncombinations were pooled. Items were combined/uncombined where there was a clear consensus as to the decision. For the rest of these decisions, I had to use my judgment. If there was any doubt as to whether the items should be combined - that is, whether they were tapping the same construct - they were kept separate. Additionally,

votes were tallied and summed and then each group's list of root causes was ranked by "total points" from highest to lowest.

3.4.3 Round Three

Once again, the votes for each of the root causes were tallied and summed and then the "product" of these two numbers was found. This time, each group's list of root causes was ranked by "product" from highest to lowest. Furthermore, the "top" root causes (usually identified by some natural cut-off point in the data) from the lists of the Non-Hoshin and Hoshin-Practitioner groups were merged to form an "overlapping" list. The nature of the statistical tests that would be run later in the study required that the two groups be working off the *same* list in Round 4.

3.4.4 Round Four

In order to be able to use parametric statistical tests, the underlying assumptions behind them must be met. When these assumptions or "parameters" (such as the population being normally distributed) can't be met, one needs to look to alternative tests, namely, non-parametric statistical tests. While using non-parametric tests is computationally easier, there are inevitably some trade-offs that must be made. One important trade-off is in the "power" of the test. In essence, some of the "weight" behind the findings is lost when a non-parametric statistical test is used rather than a parametric test.

Due to the small sample sizes that were used and the fact that the participants were not selected at random (that is, everyone in the population did not have an equal chance of being selected), I felt that I did not meet the assumptions required by parametric statistical tests. Therefore, I used a non-parametric statistical test (Mann-Whitney) to test the research hypothesis of this study. The "ratings" for each participant in the two

groups being compared (Non-Hoshin and Hoshin-Practitioner) were aggregated across all of the items on the overlapping list, giving me a "total" score for each individual. These "total" scores for the individuals in the two groups made up the data that were used to test the research hypothesis. That is, I tested to see if the Hoshin organizations struggled less with the root causes as a whole (since I had aggregated each individual's ratings into a "total" score) than the Non-Hoshin group did.

In addition to the research hypothesis, I wanted to test each of the individual root causes on the "overlapping" list to determine if there was a significant difference between the responses of the Non-Hoshin group and the Hoshin-Practitoner group. The Mann-Whitney test was again used. All of the tests (including the research hypothesis) were one-tailed since, in each case, I was hypothesizing that the Hoshin-Practitioner group would struggle less than the Non-Hoshin group.

3.4.5 Round Five

The analysis of the data collected in Round 5 was basically exploratory in nature. Participants supplied both quantitative and qualitative data regarding their reactions to the results and the study in general. Additionally, data were collected on the criteria I used to "classify" the organizations (as either Hoshin or Non-Hoshin) as an attempt at triangulation. Primarily, I was just looking to understand the data a little better.

CHAPTER FOUR: RESULTS

The purpose of this chapter is twofold. First, it presents the data that were collected during the study in an organized format. Second, it seeks to convert those data into information, which involves both the analysis and an exploration of the data. The outputs of this conversion process include: answers to the research questions, discussions of the results, and the identification of trends in the data.

This chapter is comprised of five sections, one for each round of data collection. The first two sections simply present the data that was collected in the round. The third section summarizes the final lists of root causes that were generated by the three groups and discusses some trends found in the data. The forth section presents the data that were collected and discusses the results of the test of the research hypothesis. The final section summarizes the data that were collected from the participants regarding their reactions to the results and the study in general.

4.1 Round One

The objective of Round 1 was simply to have the participants generate an initial list of root causes. The data collected for Round 1 was in the form of "bulletized lists" of root causes from each of the participants. These lists were aggregated into an overall list for each of the three groups and then items were combined as appropriate. Letters were assigned to the items (capital letters for the root cause and lower-case letters for sub-bullets) for identification purposes. Tables 4-1, 4-2, and 4-3 present these data (which are arranged in no particular order).

Table 4-1: The Non-Hoshin Group's Initial List of Root Causes

A. Lack of mission focus / shared vision
   a. Where are we going?
   b. No common vision
   c. No long term vision
B. Lack of commitment to the effort
   a. Lack of commitment to change
   b. Uncommitted leadership
   c. Insufficient emphasis (priority) placed on the plan by top management as opposed to other day-to-day flaps
   d. No interest / support / commitment to the planning effort
   e. Limited consensus building
   f. Lack of support from headquarters (upline)
C. Operating systems designed to discourage risk taking and encourage risk avoidance
D. Destructive personalities in positions of power
E. Fear of retribution by power holders
F. Lack of skills for managing change
G. Human nature resistance to change
H. The existing culture
   a. Tradition
   b. Not a standard part of meetings
I. Lack of proper follow-up by top-management once the plan was developed
J. Some of the elements of the plan are unrealistic and if not corrected quickly, can cause enthusiasm to wane
K. Misalignment with other up-line or down-line plans
L. Lack of an integrated planning and operations system that depends on strategic goals to operate
M. Lack of a process that plans, schedules, allocates resources and monitors implementation of each of the strategic initiatives
N. Lack of lower-level involvement
   a. Insufficient buy-in by the organization as the plan is being initially deployed - a feeling of non-involvement
   b. Upper management only ones with solutions
O. Inability to develop goals from a quantitative basis and failure to return to that basis when determining if the goal has been achieved
P. Planning team lacks the technical knowledge of their business and know-how to strategically plan for its future
Q. Shortsightedness - short term mentality
R. "The process" was late
S. Not "walking the talk"
T. Improper feedback
U. Rumor mill is rampant
V. Turnover of architect group
W. Not using Quality tools
X. The belief that the effort doesn't apply to everyone
Y. Lack of worker trust
Z. Just another program
AA. Don't empower employees

Table 4-1: The Non-Hoshin Group's Initial List of Root Causes (cont.)

AB. We have other priorities
AC. No grass roots support
AD. Voluntary
AE. Poor "Front" coordination
AF. No recipe
AG. Lack of "Front" definition
AH. Not using same plan
AI. No good rewards / punishment system
AJ. Lack of priority given to the effort
AK. Poor labor force management
AL. No "healthy" fear
AM. Poor management accountability
AN. Poor measurement tools
AO. "Measurement" concept not understood
AP. Measurement is too hard to do or we don't need it
AQ. Education / deployment too soon
AR. No just-in-time training
AS. Poor senior management knowledge
AT. Educational gap among participants
    a. No common body of knowledge
    b. Unequal educations
AU. Problems with the architecture of the effort
    a. Improper direction given to the architecture group
    b. Architect group confused over responsibilities
    c. Design was poor
AV. We call ordinary meetings "TQL"
AW. No closure on TQL
AX. Infrastructure complexity
    a. Too many layers of management
    b. Infrastructure differences
    c. Too many layers
AY. Customer focus
    a. Lack of a value system held by the CEO and their executive team (and for that matter, the entire organization) that emphasizes the requirement to anticipate and satisfy the customer's needs
    b. Cannot build special customer relations
AZ. Inability to bring key people into the effort
    a. No union buy-in
    b. No management / union partnership

Table 4-2: The Hoshin-Practitioner Group's Initial List of Root Causes

A. Management actions that send an opposing message, contradictory to the verbal communications - failure to "walk the talk"
B. The inability to completely close educational gap between early participants and newly trained employees - lack of a "formal" retention program
   a. Lack of education within the staff and support group, compounded by numerous changes in people and job responsibilities
   b. Numerous staff changes in relatively short periods of time
   c. Workforce inexperience and training†
C. Increased emphasis on high production goals
D. Lack of balance in staff authority level
E. Failure to convey authority "downward" through the organization
F. Failure to accept authority due to lack of accountability requirements
   a. Inability to hold managers / staff accountable
G. Growth in the business
H. Lack of clear understanding or education of purpose and tasks
   a. The inability to clearly task implementation
I. Higher degree of responsibility
J. The lack of "celebration" of successes
K. An inability to bring key people into the effort (i.e. physicians)
L. An overall misunderstanding of the philosophy and reality of empowerment
M. General slowness to accept significant change in old style management paradigms
N. Environmental uncertainty
   a. The fear of health care reform and the need for senior management to focus on more long-term issues instead of current planning implementation
O. The desire to realize immediate change and success - lack of patience
P. A large number of tactical objectives, many which are poor in quality
Q. Conflicts in the prioritization among daily "must do" work assignments and planning objectives
R. Don't attain the depth of penetration downline that is available
S. Technical education and training†
T. Supplier development and support†
U. Limited product research and development capability†
V. Multi-directional communication and understanding†
W. Cross-functional trust and cooperation†

† Participant listed root causes which currently appear to be "limiting the rate of momentum gain" rather than leading his organization to "lose" momentum

Table 4-3: The Hoshin-Theorist Group's Initial List of Root Causes

A. Cultural preference for what is verbal as opposed to visual
B. Justified fear of what "visibility" of goals and objectives will result in
C. Lack of management skills for the required "dialogue" of the catchball process
   - catchball is a process of negotiation with upline and downline systems to agree on goals, measures, and review
D. Short-term focus driven by Wall Street
E. Misalignment of Sr. Management / Executive groups
F. Strategic thinking and doing are not currently rewarded sufficiently to warrant the effort
G. Fear of change
H. Leaders / Leadership teams without the appropriate skills to develop the plan and then deploy it
I. Organizations try to do too much, too quickly
J. Organizations attempt the effort w/o the resources, skills, and tools to do it well
K. The pervasive thought that we live in a world of scarcity
L. No critical mass of architects and engineers for the effort, no change masters
M. Adequate application of resources is not maintained to the effort
N. No constancy of methods
O. No continuity of leadership
   a. Frequent changing of top management
P. No attention to detail
Q. Lack of profound knowledge about business (doing the job) and improvement
R. No discipline
S. Poor communication and coordination
T. No cross-functional systems appreciation - no one "owns" the system
U. Poor quality design and execution of the effort
V. Overestimating participants ability to successfully comprehend the conceptual elements of the task
W. Executive saturation - due to many requests that show little in the way of reasonable benefit-to-cost ratios in terms of the individual
X. Latent, free-floating hostility to anything new

4.2 Round Two

The second round was intended to give the participants an opportunity to (1) identify root causes that they needed further clarification on; (2) identify items that they felt should be combined or uncombined; and (3) make additions to the list.

The data collected in Round 2 were in the form of recommendations from each participant as to which items needed further clarification, which ones should be combined or uncombined, and any additional root causes they would like added to their group's list. Additionally, the participants went through an initial voting procedure on the list of root causes. The results of this procedure for each of the three groups are summarized in Tables 4-4, 4-5, and 4-6.

The first column of each table simply lists the root causes. To make portrayal of the data easier, only those root causes that received votes are included on this list. The second column lists the actual votes that each item received. In a sense, it gives us a measure of the level of agreement for a particular item. For example, if a group was comprised of seven participants and one of the items received six votes, we could conclude that there was a high level of agreement among the group that that particular item belongs on the list. The third column simply displays for each item, the total number of votes and the total sum of those votes. The last column is the product of the two numbers in the third column, that is, the total number of votes times the total sum of the votes. The items on the list are rank ordered based on this last column (product).

For example, the first item in Table 4-4 received votes of 2, 3, 8, 9, 9, and 9. Therefore, there were 6 total votes with a sum of 40 as shown in the third column. The product of these two numbers is 240. Since this item received six out of a possible seven votes, we can conclude that there was a high degree of agreement among the group that this item belongs on the list.

Table 4-4: Results of Non-Hoshin Group's Initial Voting

ITEM	VOTES 9 = most important; 1 = least important	TOTAL # votes/ total vote score	PRO-DUCT
B. Lack of commitment to the effort	2-3-8-9-9-9	6/40	240
A. Lack of mission focus / shared vision	1-6-7-9	4/23	92
H. The existing culture	3-7-8	3/18	54
BC. Poor understanding of and use of measurement in the planning process	1-2-2-8	4/13	52
M. Lack of a process that plans, schedules, allocates resources and monitors implementation of each of the strategic initiatives	3-6-7	3/16	48
D. Destructive personalities in positions of power	6-7	2/13	26
N. Lack of lower-level involvement	5-8	2/13	26
AZ. Inability to bring key people into the effort	4-5	2/9	18
F. Lack of knowledge and skills for managing change	2-4	2/6	12
AG. Lack of "Front" definition - The components of each "front" (organizational subsystem) and the interrelationships among them are not fully understood by those leading the change effort	9	1/9	9
I. Lack of proper follow-up by top-management once the plan was developed	8	1/8	8
AX. Infrastructure complexity	7	1/7	7
P. Planning team lacks the technical knowledge of their business and know-how to strategically plan for its future	6	1/6	6
AU. Problems with architecture of the effort - those designing the change effort	6	1/6	6
C. Operating systems designed to discourage risk taking and encourage risk avoidance	5	1/5	5
AR. No just-in-time training	5	1/5	5
X. The belief that the effort doesn't apply to everyone	4	1/4	4
AY. Customer focus	4	1/4	4
J. Some of the elements of the plan are unrealistic and if not corrected quickly, can cause enthusiasm to wane	3	1/3	3
K. Misalignment with other up-line or down-line plans	1	1/1	1
AT. Educational gap among participants	1	1/1	1

Number of participants who voted = 6
n (number of items asked to vote for) = 9

Table 4-5: Results of Hoshin-Practitioner Group's Initial Voting

ITEM	VOTES 9 = most important; 1 = least important	TOTAL # votes/ total vote score	PRO-DUCT
W. Cross-functional trust and cooperation†	7-7-8	3/22	66
K. An inability to bring key people into the effort	6-7-8	3/21	63
A. Management actions that send an opposing message, contradictory to the verbal communications	9-9	2/18	36
M. General slowness to accept significant change in old style management paradigms	2-3-6	3/11	33
B. The inability to completely close educational gap between early participants and newly trained employees - lack of a "formal" retention program	6-8	2/14	28
T. Supplier development and support†	4-5	2/9	18
H. Lack of clear understanding or education of purpose and tasks	3-4	2/7	14
J. The lack of "celebration" of successes	3-4	2/7	14
R. Don't attain the depth of penetration downline that is available	2-5	2/7	14
V. Multi-directional communication and understanding†	9	1/9	9
N. Environmental uncertainty	1-2	2/3	6
Q. Conflicts in the prioritization among daily "must do" work assignments and planning objectives	5	1/5	5
O. The desire to realize immediate change and success - lack of patience	1	1/1	1
P. A large number of tactical objectives, many which are poor in quality	1	1/1	1

† Participant listed root causes which currently appear to be "limiting the rate of momentum gain" rather than leading his organization to "lose" momentum

Number of participants who voted = 3
n (number of items asked to vote for) = 9

Table 4-6: Results of Hoshin-Theorist Group's Initial Voting

ITEM	VOTES 9 = most important; 1 = least important	TOTAL # votes/ total vote score	PRO-DUCT
G. Fear of change	3-4-8-8	4/23	92
J. Organizations attempt the effort w/o the resources, skills and tools to do it well	4-6-9	3/19	57
T. No cross-functional systems appreciation - no one "owns" the system	5-6-7	3/18	54
R. No discipline	1-6-9	3/16	48
N. No constancy of methods	7-8	2/15	30
B. Justified fear of what "visibility" of goals and objectives will result in	4-7	2/11	22
P. No attention to detail	2-8	2/10	20
D. Short-term focus driven by Wall Street	2-7	2/9	18
O. No continuity of leadership	3-6	2/9	18
I. Organizations try to do too much, too quickly	1-1-3	3/5	15
S. Poor communication and coordination	3-4	2/7	14
A. Cultural preference for what is verbal as opposed to what is visual	9	1/9	9
F. Strategic thinking and doing are not currently rewarded sufficiently to warrant the effort	9	1/9	9
Q. Lack of profound knowledge about business (doing the job) and improvement	2-2	2/4	8
C. Lack of management skills for the required "dialogue" of the catchball process	5	1/5	5
H. Leaders / Leadership teams without the appropriate skills to develop the plan and then deploy it	5	1/5	5
U. Poor quality design and execution of the effort	5	1/5	5
E. Misalignment of Sr. Management / Executive groups	1	1/1	1

Number of participants who voted = 4
n (number of items asked to vote for) = 9

4.3 Round Three

4.3.1 Summary of the Data Collected

The purpose of Round 3 was simply to allow the participants another chance to vote on their "top" root causes based on the feedback they received from the previous round. Tables 4-7, 4-8, and 4-9 summarize the results. Once again, in order to make it easier to portray the data, only those items that received votes are included on the lists and the "top" root causes for each group have been shaded.

Table 4-7: Results of Non-Hoshin Group's Final Voting

ITEM	VOTES 9 = most important; 1 = least important	TOTAL # votes/ total vote score	PRO-DUCT
B. Lack of commitment to the effort	1-6-9-9-9-9-9	7/52	364
A. Lack of mission focus / shared vision	7-8-8-8-9-9	6/49	294
M. Lack of a process that plans, schedules, allocates resources and monitors implementation of each of the strategic initiatives	1-2-3-3-6-7-7	7/29	203
N. Lack of lower-level involvement	1-3-4-6-7-8	6/29	174
BC. Poor understanding of and use of measurement in the planning process	4-5-5-7-8	5/29	145
F. Lack of knowledge and skills for managing change	2-3-4-4-5	5/18	90
H. The existing culture	1-6-7-8	4/22	88
AZ. Inability to bring key people into the effort	2-4-4-5	4/15	60
I. Lack of proper follow-up by top-management once the plan was developed	5-6	2/11	22
D. Destructive personalities in positions of power	2-8	2/10	20
AU. Problems with architecture of the effort - those designing the change effort	3-6	2/9	18
P. Planning team lacks the technical knowledge of their business and know-how to strategically plan for its future	1-5	2/6	12
AY. Customer focus	2-3	2/5	10
Q. Shortsightedness - short term mentality	7	1/7	7
J. Some of the elements of the plan are unrealistic and if not corrected quickly, can cause enthusiasm to wane	6	1/6	6
AX. Infrastructure complexity	5	1/5	5
C. Operating systems designed to discourage risk taking and encourage risk avoidance	4	1/4	4
BA. Inconsistency in leadership behavior sends mixed messages to employees creating confusion and mistrust	3	1/3	3
E. Fear of retribution by power holders	2	1/2	2
AG. Lack of "Front" definition - The components of each "front" (organizational subsystem) and the interrelationships among them are not fully understood by those leading the change effort	2	1/2	2
K. Misalignment with other up-line or down-line plans	1	1/1	1
X. The belief that the effort doesn't apply to everyone	1	1/1	1

Number of participants who voted = 7
n (number of items asked to vote for) = 9

Table 4-8: Results of Hoshin-Practitioner Group's Final Voting

ITEM	VOTES 9 = most important; 1 = least important	TOTAL # votes/ total vote score	PRO-DUCT
B. The inability to completely close educational gap between early participants and newly trained employees - lack of a "formal" retention program	1-3-4-6-9	5/23	115
K. An inability to bring key people into the effort	2-7-9-9	4/27	108
W. Cross-functional trust and cooperation†	5-5-5-8	4/23	92
A. Management actions that send an opposing message, contradictory to the verbal communications	2-4-7-9	4/22	88
V. Multi-directional communication and understanding†	3-4-6-9	4/22	88
Q. Conflicts in the prioritization among daily "must do" work assignments and planning objectives	2-4-6-7	4/19	76
L. An overall misunderstanding of the philosophy and reality of empowerment	2-3-5-8	4/18	72
M. General slowness to accept significant change in old style management paradigms	1-2-5-6	4/14	56
J. The lack of "celebration" of successes	3-4-7	3/14	42
S. Technical education and training†	5-8	2/13	26
G. Growth in the business	3-8	2/11	22
N. Environmental uncertainty	1-1-4	3/6	18
H. Lack of clear understanding or education of purpose and tasks	1-8	2/9	18
X. The inability to clearly task implementation	9	1/9	9
Y. Inability to hold managers / staff accountable	8	1/8	8
C. Increased emphasis on high production goals	7	1/7	7
E. Problems conveying authority downward through the organization	7	1/7	7
I. Failure of individuals to accept higher degree of responsibility	6	1/6	6
T. Supplier development and support†	6	1/6	6
O. The desire to realize immediate change and success - lack of patience	3	1/3	3
R. Don't attain the depth of penetration downline that is available	2	1/2	2
P. A large number of tactical objectives, many which are poor in quality	1	1/1	1

† Participant listed root causes which currently appear to be "limiting the rate of momentum gain" rather than leading his organization to "lose" momentum

Number of participants who voted = 5
n (number of items asked to vote for) = 9

Table 4-9: Results of Hoshin-Theorist Group's Final Voting

ITEM	VOTES 9 = most important; 1 = least important	TOTAL # votes/ total vote score	PRO-DUCT
J. Organizations attempt the effort w/o the resources, skills and tools to do it well	4-6-7-9	4/26	104
I. Organizations try to do too much, too quickly	2-4-5-8	4/19	76
Q. Lack of profound knowledge about business (doing the job) and improvement	5-6-9	3/20	60
F. Strategic thinking and doing are not currently rewarded sufficiently to warrant the effort	1-8-9	3/18	54
R. No discipline	1-1-5-6	4/13	52
H. Leaders / Leadership teams without the appropriate skills to develop the plan and then deploy it	1-7-8	3/16	48
O. No continuity of leadership	3-3-7	3/13	39
T. No cross-functional systems appreciation - no one "owns" the system	3-4-6	3/13	39
G. Fear of change	6-7	2/13	26
S. Poor communication and coordination	4-8	2/12	24
N. No constancy of methods	3-8	2/11	22
U. Poor quality design and execution of the effort	2-9	2/11	22
B. Justified fear of what "visibility" of goals and objectives will result in	2-7	2/9	18
C. Lack of management skills for the required "dialogue" of the catchball process	3-5	2/8	16
D. Short-term focus driven by Wall Street	2-4	2/6	12
A. Cultural preference for what is verbal as opposed to what is visual	9	1/9	9
E. Misalignment of Sr. Management / Executive groups	5	1/5	5
P. No attention to detail	2	1/2	2
W. Executive saturation	1	1/1	1

Number of participants who voted = 5
n (number of items asked to vote for) = 9

4.3.2 Discussion of the Results

Certainly, no one of these lists (nor the combination of the three) constitutes "the list" of root causes, however, they each add a piece to the puzzle. In order to improve our knowledge, we must be able to look at a problem from different perspectives (Scherkenbach, 1991). Each of the three lists generated gives us a unique view of the problem -- none of them are either right or wrong, they simply each give us a different perspective. Therefore, it might be helpful at this point to briefly discuss some of the "trends" that can be found through an exploration of the data.

4.3.2.1 Approach to the Problem

One of the first things that struck me as I began to compare the lists generated by the Non-Hoshin and Hoshin-Practitioner groups, was not a difference in the lists themselves, but rather the way in which one of the participants seemed to approach the problem. Rather than submit a list of root causes that lead his organization to "lose momentum" during implementation and deployment, one of the members of the Hoshin-Practitioner group submitted a list of root causes that appear to be "limiting his organization's rate of momentum gain." I believe this indicates a slightly different (more optimistic) approach to the problem.

But would this difference in approach have any impact on our efforts to tackle the problem? That is, would one approach be more successful than the other at helping maintain momentum during implementation and deployment? A study of self-fulfilling prophecies, or the "Pygmalion effect," might lead one to believe that the approach taken by the Hoshin-Practitioner would undoubtedly be more successful. Unfortunately, since only one member of the Hoshin-Practioner group made this comment, we can't assume the entire group has this same approach to the problem.

4.3.2.2 Lack of Organizational Focus

A major "trend" that I noticed among the three lists of root causes, is that a number of the items point toward "the lack of organizational focus" as being a major problem. That is, each of the groups generated root causes that indicate an inability to focus the entire organization's efforts on the <u>same</u> goals.

For example, the Non-Hoshin group listed the following as some of their top items: "Lack of commitment to the effort," "Lack of mission focus / shared vision," "Lack of a process that plans, schedules, allocates resources and monitors implementation of strategic initiatives," and the "Inability to bring key people into the effort." Additionally, the group generated items such as "Misalignment with other up-line or down-line plans," and "The belief that the effort doesn't apply to everyone."

Similarly, the Hoshin-Practitioner group listed root causes such as: "An inability to bring key people into the effort," "Cross-functional trust and cooperation," "Management actions that send an opposing message, contradictory to the verbal communications," "Multi-directional communication and understanding," "Conflicts in the prioritization among daily 'must do' work assignments and planning objectives," and "Don't attain the depth of penetration downline that is available."

Finally, the Hoshin-Theorist group came up with items that included: "No cross-functional systems appreciation," Poor communication and coordination," and "Misalignment of Sr. Management / Executive groups."

All of these root causes seem to address the problem associated with an organization's inability to focus its efforts, to align all of its resources on the same goals (or vision). In today's competitive environment, where almost every organization is faced with limited resources, the ability to focus all of its efforts on the same goals will be crucial to an organization's success (maybe even survival).

4.3.2.3 Level of Specificity

Another trend that I noticed as I compared the lists generated by the Non-Hoshin and Hoshin-Practitioner groups, is that in general, there seems to be a difference in the "level of specificity" of the items. That is, it appears as if the root causes generated by the Hoshin-Practioner group are more specific about the nature of the problem.

For instance, the Non-Hoshin group listed general items like "Lack of mission focus / shared vision," while the Hoshin-Practitioner group listed more specific items to address the same issue such as "Cross-functional trust and cooperation," "Management actions that send an opposing message, contradictory to the verbal communications," "Multi-directional communication and understanding," and "Conflicts in the prioritization among daily 'must do' work assignments and planning objectives."

4.3.2.4 Lack of Commitment to the Effort

Another trend among the data appears to be the problem of creating commitment to the effort. The Non-Hoshin group actually generated "Lack of commitment to the effort" as one of their root causes and ranked it as their "top" item. Looking at the data, we see that <u>all</u> seven participants in this group voted for it, five of whom voted for it as their "most important" item. Additionally, this group generated some root causes that are very much related to this issue such as: "Lack of mission focus / shared vision" (receiving six out of a possible seven votes); "Lack of lower-level involvement" (also receiving six votes); and an "Inability to bring key people into the effort" (four votes).

The Hoshin-Practitioner group also listed "Inability to bring key people into the effort" (receiving four out of a possible five votes) as one of their top root causes. In addition, they came up with several items that could potentially affect the level of commitment including "Management actions that send an opposing message,

contradictory to the verbal communications" and "Conflicts in the prioritization among daily 'must do' work assignments and planning objectives."

4.3.2.5 Lack of Knowledge and Skills

One final theme that I noticed is that a number of the root causes address the lack of knowledge and skills of individuals at all levels of the organization. The Non-Hoshin group's list of root causes included items such as "Lack of knowledge and skills for managing change," "Planning team lacks the technical knowledge of their business and know-how to strategically plan for its future," and "Poor understanding and use of measurement." Among its root causes, the Hoshin-Practitioner group listed "The inability to completely close educational gap between early participants and newly trained employees" (receiving a vote from all five participants in the group), "An overall misunderstanding of the philosophy and reality of empowerment," "Technical education and training," and "Lack of clear understanding or education of purpose and tasks." Similarly, the Hoshin-Theorist group came up with root causes such as "Lack of profound knowledge about business and improvement," "Leaders / leadership teams without the appropriate skills to develop the plan and then deploy it," and "Lack of management skills for the required 'dialogue' of catchball."

4.4 Round Four

In preparation for Round 4, the "top" root causes from the lists generated by the Non-Hoshin and Hoshin-Practitioner groups were combined in order to form an "overlapping" list. These "top" root causes are those that have been shaded in Tables 4-7 and 4-8. There were eight items from the Non-Hoshin group's list and seven items

from the Hoshin-Practitioner group's list. However, there was one root cause that was identical on both lists, so there ended up being fourteen items on the "overlapping" list. The participants of both groups were then asked to rate on a scale ranging from 1 to 5, the degree to which their organization struggles with each of the root causes on this overlapping list. In the case of the Hoshin-Theorist group, they were given a list made up solely of those root causes that they had generated themselves and were asked to respond with respect to their experience with multiple organizations.

4.4.1 Summary of the Data Collected

The data that were collected are portrayed in Tables 4-10, 4-11, and 4-12. (Please note that the list of root causes for the Non-Hoshin and Hoshin Practitioners groups are now identical because as mentioned, they were combined to form an "overlapping" list in preparation for the statistical tests.)

For each of the root causes, the "ratings" by the individuals in that group are listed vertically down the column titled "Scale and Comments." If an individual provided qualitative comments for a particular root cause, they are included next to the number corresponding to that individual's rating of that root cause. For example, the first root cause on the Non-Hoshin group's list (Table 4-10) is "Lack of commitment to the effort." It received ratings of 4, 3, 5, 2, 2, 4, and 1 from the seven members in that group. The first member of this group, who rated this root cause a 4, made the comment that "Most people are committed, but a few of the most influential are not." (Note: the Non-Hoshin group had 7 people participate in this round while both the Hoshin-Practitioner and Hoshin-Theorist groups had 5.)

Table 4-10: Non-Hoshin Group's Data from Round Four

ITEM	SCALE AND COMMENTS
Lack of commitment to the effort	4 - Most people are committed, but a few of the most influential are not 3 5 2 2 - Had a very large organization so it did not get up to speed all at once. Used "inner core" of management to slowly but surely integrate our changes into everyone's daily work life. Spread in many cases through osmosis and training. Some by peer pressure. 4 - Create, or highlight, the reasons change is necessary. Explain the crisis. Explain what's in it for them. 1 - We had great upline support from the outset, and I agree that this is critical. All I can suggest is that others seek out a vocal/powerful/influential sponsor for their change projects.
Lack of mission focus / shared vision	4 - Still too many "rice bowls" 3 4 2 1 - Publicized strategic planning efforts widely. Spent a lot of time during its development on analysis of current/expected environment, and on mission/vision statements 4 4 - Our leader chose to withhold his vision to avoid forcing the team's thinking. I think the confusion of no shared vision is a greater pitfall than the risk of shutting down the team's creativity.
Inability to bring key people into the effort	3 - Still a few key people who are not full participants 2 3 - Just beginning union-management "partnerships" as a result of new presidential executive order to "reinvent government" 4 2 - Utilized an "inner sanctum" approach of 4-5 top managers who were "believers." They helped, through peer pressure and diffusion of change through their organizations, to bring in the rest of the key people. 4 4 - We had difficulty convincing the unionized employees that the project was not only about reducing laborers. One tip, ensure that Part-time/Full-time employees are treated equitably to prevent counter-cultural groups within the employee ranks.

Table 4-10: Non-Hoshin Group's Data from Round Four (cont.)

Lack of a process that plans, schedules, allocates resources and monitors implementation of each of the strategic initiatives	4 - We are trying but only having limited success because of the lack of commitment from a few key people 1 4 3 1 - Used the following method(s): 1. assigned each objective or sub-objective to an individual 2. held regular, quarterly meetings of the corporation's steering group (observed by myself) where each principle objective's plan/progress was reviewed 3 3 - We could/should have moved harder/earlier on the ET&D and Measurement fronts. (i.e. within first 3 months of project for the operational teams - PLT)
Lack of lower-level involvement	4 - Only because we haven't given them the tools 4 5 4 2 - Held extensive briefings of <u>all</u> supervisors, union officials, etc. once strategic plan was developed, and once yearly after that. This involved approx. 1500-2000 people of a work force of about 13000; Used newspaper articles 4 1 - Ensure that all levels of management are involved to create buy-in. Push ET&D front for more junior managers to develop problem solving skills
Poor understanding of and use of measurement in the planning process	5 - We talk about it, recognizing the importance, but haven't had a lot of success so far 5 4 4 3 - Measurement usually not too difficult at lower levels of organization, but more difficult at higher levels in the more "subjective" objectives. Never came to closure on all this. 4 4 - We weren't sophisticated enough to tackle measurement early on in the project when it was required. In hindsight, I would have focused more on measurement within the ET&D front early in the project

Table 4-10: Non-Hoshin Group's Data from Round Four (cont.)

The inability to completely close educational gap between early participants and newly trained employees - lack of a "formal" retention program	4 4 5 2 - Implemented (in TQL) QMBs and PATs and (in strategic planning) SOMB (Strategic Objective Monitor Board) and TOATS (Tactical Objective Action Team). Quality Advisors (trained facilitators) hold training segments during each meeting of the groups listed 2 - We dedicated sufficient budget to training at a reasonable pace for a large organization, taking care to train not all in one area at once, so word spread more quickly throughout whole corporation 5 - Just-in-time training. Teach them what they need to know, then reward them for applying it right away. 1 - We had a relatively stable infrastructure with few personnel changes. With respect to workforce inexperience and training, push the ET&D front early and hard!!
Cross-functional trust and cooperation†	3 3 4 3 4 - Our organization had a lot of "stovepipes." It took a long time to work through, but some dramatic results began to show as time passed 5 1
Management actions that send an opposing message, contradictory to the verbal communications - Failure to "walk the talk"	3 3 5 - We don't even "talk the talk" much anymore 1 - Top level management was exposed to principles and techniques early in program. Include briefs at monthly board meetings by managers. Monthly board meetings force "corporate" thinking 4 - Closely related to the above. Was corrected with same ways, at the same pace. Of course, some "old dogs" never learned the "new tricks." 5 3 - Guaranteeing full-time positions, but not part-time jobs was inconsistent and should have been handled differently
Multi-directional communication and understanding† - The challenge of creating an open atmosphere with individuals sharing information & expertise to achieve common goals	3 3 3 4 2 - After a few tentative tries, this began to work, particularly when it became known that the corporation's steering group was doing it rather well 4 1 - These issues seem to involve breaking paradigms about how business should be done. Our design team was cross-functional and "hand-picked" to provide greater assurance of open communication, trust, and a willingness to try something new

Table 4-10: Non-Hoshin Group's Data from Round Four (cont.)

The existing culture	4 - Still want to fall back on "how we used to do it" 3 5 3 3 - Same comments as the 3 above items 5 1 - See "breaking paradigm" comment above
Conflicts in the prioritization among daily "must do" work assignments and planning objectives	4 - We still get caught up in short-term problems 3 4 4 3 - This quickly became much less of a problem than expected, once top managers began to "walk the talk." 3 2 - See "breaking paradigm" comment above
Lack of knowledge and skills for managing change	3 4 4 1 - Instituted training requirements for top management and established trained "quality advisors" to keep training up to date 1 - Once motivation was clear and training conducted, this wasn't a problem 5 1 - See "breaking paradigm" comment above
An overall misunderstanding of the philosophy and reality of empowerment	4 5 5 - 5+ 3 3 - This was improved over time, as the reality of the changes progressed through the organization from the top down 4 1 - See "breaking paradigm" comment above

† Participant listed root causes which currently appear to be "limiting the rate of momentum gain" rather than leading his organization to "lose" momentum

Table 4-11: Hoshin-Practitioner Group's Data from Round Four

ITEM	SCALE AND COMMENTS
Lack of commitment to the effort	3 2 2 - Hold leadership retreats for top management on regular basis 2 - Item is managed by driving "multi-directional communication and understanding" programs 2 - This may point to the fact that without a committed senior leader(s), this type of planning will not work. There may be no sense in trying without this top down support (This cause is "too simple")
Lack of mission focus / shared vision	2 3 1 - Used an interactive process for developing vision and have a committed "Mission Enrichment" Committee with mission liaisons in every department 2 - Item is managed by driving "multi-directional communication and understanding" programs 1 - Again, this comes from leadership. Shared vision is impossible without leadership effort
Inability to bring key people into the effort	1 3 3 - Do not have "unions" but do have difficulty moving the efforts down through the organization 2 2 - This seems like it should be incorporated into the first root cause
Lack of a process that plans, schedules, allocates resources and monitors implementation of each of the strategic initiatives	2 1 2 - Have put in place an effective "Hoshin Planning" process which has been operationalized. Working now on integrating with strategic planning 2 2
Lack of lower-level involvement	3 2 3 - Ongoing struggle 2 - Item is managed by driving "multi-directional communication and understanding" programs 3 - This perhaps is one of the hardest issues to deal with. Tasking is very important here - and an audit/review system as well
Poor understanding of and use of measurement in the planning process	1 2 3 - Difficult only because it takes time to "roll-out" through organization when resources are limited 2 3 - You've got to teach, reteach and test. If you don't, there's no sense in trying to make a change

Table 4-11: Hoshin-Practitioner Group's Data from Round Four (cont.)

The inability to completely close educational gap between early participants and newly trained employees - lack of a "formal" retention program	4 3 3 - Also an ongoing problem. Mainly due to lack of resources and difficulty in educating all employees in a timely manner 3 3
Cross-functional trust and cooperation†	3 2 2 - Getting better as a result of cross-functional teams 3 3
Management actions that send an opposing message, contradictory to the verbal communications - Failure to "walk the talk"	2 2 3 - Constant struggle - part of the implementation process 1 - Item is managed by driving "multi-directional communication and understanding" programs 2
Multi-directional communication and understanding† - The challenge of creating an open atmosphere with individuals sharing information & expertise to achieve common goals	2 2 3 3 2
The existing culture	2 3 2 2 2 - Change takes time. You have to keep at it.
Conflicts in the prioritization among daily "must do" work assignments and planning objectives	4 - Strong increase in sales 4 3 2 3 - This is a tough one. Confusion may exist without clear directives. Management is key here.
Lack of knowledge and skills for managing change	2 2 2 2 1 - Goes without saying. If the top doesn't understand or is unwilling to change, the whole program(s) falls apart. Check Deming on this.
An overall misunderstanding of the philosophy and reality of empowerment	3 2 3 2 3 - You have to teach and reteach the concepts of empowerment over and over again.

† Participant listed root causes which currently appear to be "limiting the rate of momentum gain" rather than leading his organization to "lose" momentum

Table 4-12: Hoshin-Theorist Group's Data from Round Four

ITEM	SCALE AND COMMENTS
Organizations attempt the effort w/o the resources, skills, and tools to do it well • Adequate application of resources is not maintained to the effort	2 - Resources and tools are easier to come by than skills 5 - Make the commitment of resources visible ahead of time 1 4 - Because payoffs are long-term, resources tend to dry up - leaders underestimate the resource requirements for the long haul 4.5
Lack of profound knowledge about business (doing the job) and improvement	2 - Extensive training should proceed any change effort 4 3 - This is one of the reason's we ask for Dr. Sink's help 2 - People generally know their business - they don't always see it from a systems standpoint 4.5
Organizations try to do too much, too quickly	2 5 - Use tools to make "load" of plans visible 3 - It's tough to tell what constitutes "a bridge too far" 4 - Start on many fronts all at once with poor integration and planning, thinking that more is better and quality goes down 4.5
Strategic thinking and doing are not currently rewarded sufficiently to warrant the effort	3 3 1 - Not in my organizations! 4 - The entire rewards and motivation systems need to be addressed. Performance evaluation must include strategic planning as a factor 3
Leaders / Leadership teams without the appropriate skills to develop the plan and then deploy it	3 - Training first 5 - The problem is in the deployment 1 2 - People have the skills or can acquire them. Motivation and commitment are lacking 3
No discipline	4 - It's too easy to revert back to the old ways out of habit 4 - Will not change until we "reward" for it 2 - "Individuals intrinsically shy away from hard work" 3 5
No continuity of leadership • Frequent changing of top management	5 - The issue of the director placing too much individuality onto any change effort 2 - The issue is not a change in leadership, it is with plan continuity. Changes in mid-level management are more significant 4 5 - Political appointees change, on average, every 18 months and systems change with them 1

Table 4-12: Hoshin-Theorist Group's Data from Round Four (cont.)

No cross-functional systems appreciation - no one "owns" the system	2 4 - Make plan visible! 2 - Quite important to make sure SMG (Senior Management Group) feels they own the process! 5 - Need a tenacious, diplomatic, detail-oriented champion to keep the process on track. These are rare individuals 4
Fear of change • Latent, free-floating hostility to anything new	5 - Fear of changing and frequent personnel changes distracts everyone from their efforts 4 - Make the "urgency" to change clear to all 3 3 - Detailed, well thought out, well communicated plans for implementation will help reduce fear. Managers need training on how to create trust 2.5

4.4.2 Discussion of the Results

One of the desired outputs of this research was an investigation into whether a strategic planning system similar to Hoshin Kanri helps organizations to maintain momentum during implementation and deployment. This section seeks to explore that issue through a discussion of the results of the test of this study's research hypothesis. Furthermore, this section is intended to examine Tables 4-10, 4-11, and 4-12, once again looking for common threads or "trends" running throughout the data that was generated by the three separate groups.

4.4.2.1 Test of the Research Hypothesis

The research hypothesis for this study was that "Hoshin" organizations struggle to a lesser degree than do "Non-Hoshin" organizations with the root causes of losing momentum during the implementation and deployment of their strategic planning, TQM, or other large-scale change efforts. Therefore, the null hypothesis that was tested was:

H_O: There is no difference in the degree to which "Hoshin" and "Non-Hoshin" organizations struggle with the root causes of losing momentum during the implementation and deployment of their strategic planning, TQM, or other large-scale change efforts.

The non-parametric statistical test used was the Mann-Whitney Test. Since I was testing to see if one group struggled *less* than the other, the test is one-tailed (directional). The significance level I chose to use was .05. Table 4-13 portrays some descriptive statistics for the two groups as well as the rank results of the Mann-Whitney test. The resultant p-value turned out to be equal to .0522. (Note: These calculations were made on a Macintosh computer using version 4.01 of a software program called StatView. Appendix D contains a copy of the original data, descriptive statistics for all of the variables, and the output for all of the statistical tests that were run in this study.)

Examining Table 4-13, we find that it contains two different measures of central tendency (mean and median) and a number of measures of variability (standard deviation, median absolute deviation, minimum/maximum values) by which we can compare the two groups. Figure 4-1 provides us with yet another way to look at the data, helping us to visually compare the central tendency and variability of the two distributions. From these data, we can see that there appears to be quite a difference in both the location of the center and the variability of the two distributions. Both the mean and median of the Hoshin-Practitioner group are much lower than the Non-Hoshin group. Additionally, the measures of variability for the Hoshin-Practitioner group are much smaller, indicating less dispersion of the data. However, a statistical test is necessary in order to determine if there is a statistically significant difference between the two groups.

Table 4-13: Results of the Mann-Whitney Test for the Research Hypothesis

Group	Mean	Std. Dev.	Median	MAD	Min.	Max.	Sum Ranks	Mean Ranks
Non-Hoshin	45.43	12.43	46	13	28	60	55.5	7.929
Hoshin-Practitioner	32.8	1.92	33	1	30	35	22.5	4.5

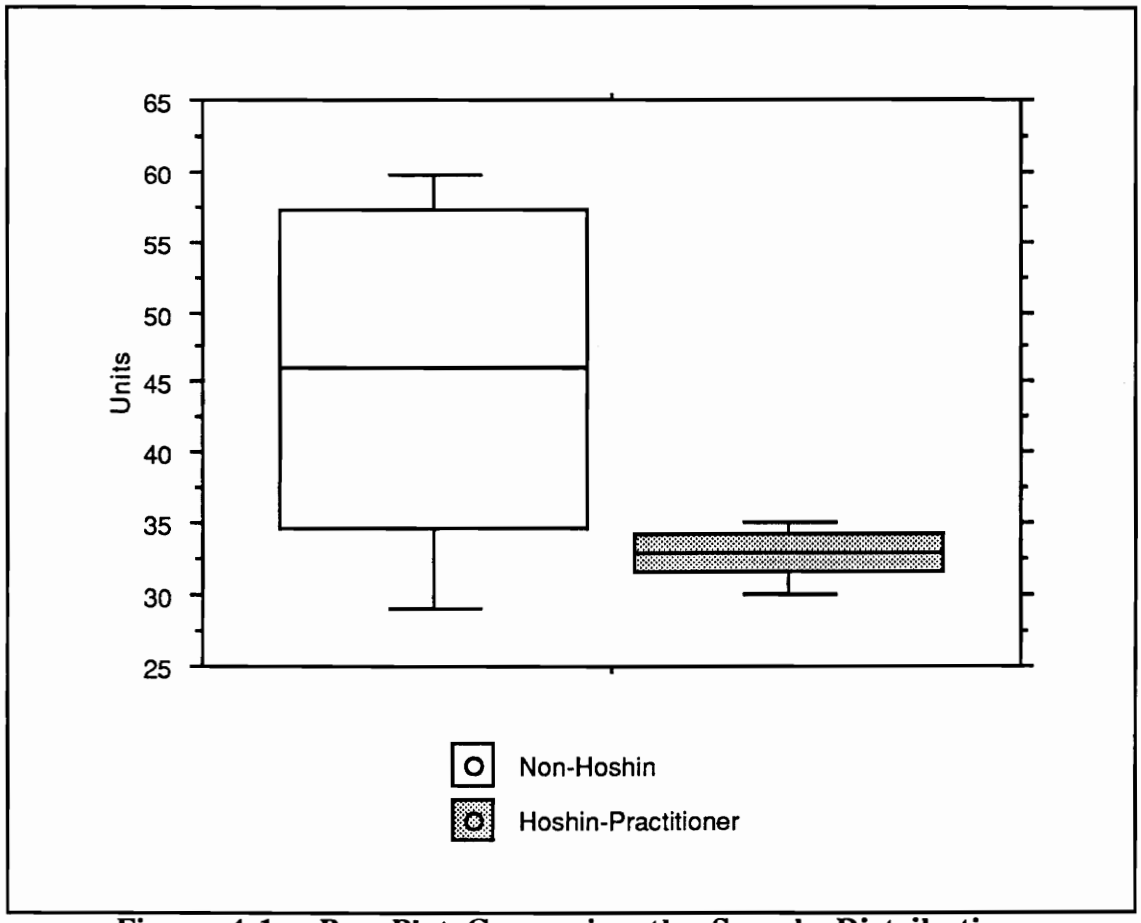

Figure 4-1: Box Plot Comparing the Sample Distributions

Looking at the resultant p-value of .0522, we find that it is extremely close to the chosen significance level of .05. However, it is still slightly greater than .05 and therefore I must "fail to reject" the null hypothesis. In other words, I can conclude that I have found no evidence to support the claim that the Hoshin-Practitioner group struggled with the "root causes" to a lesser degree than did the Non-Hoshin group. (It should be noted that for the purposes of this study, it is assumed that the "root causes" being referred to above are those that were generated by the Non-Hoshin and Hoshin-Practitioner groups during the course of this study and then combined into the "overlapping" list in Round 4).

4.4.2.2 Trends in the Qualitative Data

Exploring the qualitative data collected in Round 4, I identified several trends in the data, many of which were similar to those found in the lists of root causes. Of course, one should keep in mind that the participants were asked to make comments in response to the list of root causes, so we would expect the trends to be similar. However, the trends I have identified here seemed to be prevalent *throughout* the data. That is, they could be found in the comments for multiple root causes across all of the groups.

4.4.2.2.1 The Importance of Improving Knowledge and Skills

The first major trend I noticed was that once again, a number of items address the importance of improving the knowledge and skills of individuals at all levels of the organization. In fact, many of these comments imply that one of the critical success factors of a large-scale change effort is the commitment of ample resources to education, training and development in the early stages. Some of the recommendations made by the participants include: establish quality advisors (trained facilitators) and have them keep employees up to date by holding training segments during their regular

meetings; teach them what they need to know, and then reward them for applying it right away; push junior managers to develop problem solving skills.

4.4.2.2.2 Generating Commitment for the Effort

Another major trend in the data is the importance of creating commitment for the effort. As we would expect, numerous comments identified this as critical to the successful implementation and deployment of the effort. One participant described his organization's approach to bringing key people into the effort -- "we utilized an 'inner sanctum' approach of 4-5 top managers who were believers to help, through peer pressure and diffusion of change through their organizations, bring in the rest of the key people." Other recommendations that were made include: highlight the reasons change is necessary, explain the crisis; seek out a vocal/powerful/influential sponsor for the change effort; drive "multi-directional communication and understanding" programs; ensure plan continuity (not necessarily leadership continuity); reward people for applying the desired behaviors right away; and ensure that part-time and full-time workers are treated equitably to prevent counter-cultural groups within the organization.

An issue closely related to generating commitment that also received a lot of attention was that of creating visibility. Numerous comments addressed the importance of making the need to change, the commitment of resources, and the plan itself visible.

4.4.2.2.3 Discipline

One final trend that I would like to mention is the importance of "discipline" throughout the implementation and deployment phase. Several comments addressed the fact that it is just "too easy to revert back to the old way of doing things out of habit." One participant suggested that organizations need a tenacious, diplomatic, detail-oriented champion to keep the process on track. Others commented on *processes*

by which they attempt to maintain discipline. For example, one mentioned a 'Hoshin Planning' process, while several others mentioned processes that involve "reviews" of the progress of strategic objectives.

4.4.3 Discussion of the Other Statistical Tests

In addition to the test of the research hypothesis, I thought it would be interesting to test each of the individual root causes to see if the Hoshin-Practitioner group struggled with that particular root cause to a lesser degree than the Non-Hoshin group did (this was my hypothesis for each of the fourteen root causes that were tested). Once again, the Mann-Whitney Test was used. The tests were one-tailed and the significance level was set at .05. The results are displayed in Table 4-14. As we can see, four of the tests indicated that there was a statistically significant difference for that particular root cause while eight of them indicated no significant difference.

Table 4-14: Summary of the Other Statistical Tests

#	Test	P-value	Significant Difference?
1	Lack of commitment	.1482	No
2	Lack of mission focus / shared vision	.0323	Yes
3	Inability to bring key people into the effort	.0535	No
4	Lack of a process for managing strategic initiatives	.0766	No
5	Lack of lower-level involvement	.0770	No
6	Poor understanding and use of measurement	.0029	Yes
7	The inability to completely close educational gap	.4010	No
8	Cross-functional trust and cooperation	.0819	No
9	Failure to "walk the talk"	.0273	Yes
10	Multi-directional communication and understanding	.1511	No
11	The existing culture	.0318	Yes
12	Conflicts among daily work and planning objectives	.4304	No
13	Lack of change management knowledge and skills	.2499	No
14	A misunderstanding of empowerment	.0539	No

I believe these results were predictable based on my knowledge of Hoshin Kanri. Prior to running the tests, I would have expected a number (but certainly not all) of them to yield a significant difference between the two groups. Hoshin Kanri is "a *systems approach* to the management of change in critical business processes" (Akao, 1991). It is quite possible that an organization would be able to deal with certain root causes and not others. When we look at the root causes individually, there will be some that both Non-Hoshin and Hoshin organizations deal (struggle) with to the same degree. On the other hand, there were a number of the tests that did not yield the expected results. The remainder of this section examines the qualitative data looking for "specific reasons" as to why.

I would have expected the test of "Lack of process that plans, schedules, allocates resources and monitors implementation of each of the strategic initiatives" to show a significant difference (actually, the p-value of .0766 is pretty close to the significance level of .05) since this is precisely what Hoshin Kanri is. Looking at the data from the Non-Hoshin group, we see that several of the participants rated this item very low, indicating that they might have a process similar to the one described above. One of the participants briefly described the process they use in which they assign the objectives to individuals and then monitor their progress.

I was also surprised to find that the test for "Lack of lower level involvement" did not yield a significant difference due to the participative nature of the catchball process. It appeared that a couple of the Non-Hoshin participants have mechanisms in their organizations by which they involve lower levels in the process. One mentioned that they hold extensive briefings of all supervisors, union officials, etc. once yearly. However, I can not be certain about why the results did not turn out as expected since I did not actually collect any data from the people at these lower levels.

"The inability to completely close the educational gap between early participants and newly trained employees" appeared to be a root cause that both of the groups struggle with. Actually, I am not really all that surprised that no significant difference was found, since this seems to be a problem that all organizations face. A number of the Non-Hoshin participants gave examples in which their organizations had made quite a commitment to the education, training, and development of their workforce.

"Cross-functional trust and cooperation" is difficult to develop in any organization, especially American organizations where the employees have been subjected to such a different paradigm (competition within the organization) for so long. However, I still would have expected the test of this root cause to yield a significant difference because of the understanding and openness created by the "visibility" of a Hoshin Kanri planning system. The same goes for "Multi-directional communication and understanding." I couldn't find any "specific reasons" in the qualitative for either of these two root causes although, one Non-Hoshin participant did mention that they had "hand-picked" their design team to provide greater assurance of open communication, trust, and willingness to try something new.

I was surprised to find that "Conflicts among daily work and planning objectives" did not show a significant difference since the visibility of Hoshin Kanri is supposed to help clarify the linkages between people's daily activities and the strategic objectives. However, I did not actually talk to the people at the lower levels and the qualitative data was not much help in my effort to identify a "specific reason."

The fact that "Lack of knowledge and skills for managing change" did not yield a significant difference probably should not be all that surprising. Managing large-scale organizational change is difficult. I believe that some of the features of a Hoshin Kanri planning system help, but managing change will always be complex because you're dealing with people.

4.5 Round Five

The intent of Round 5 was to collect data regarding the participants' reactions to the results of the research and the study in general. Additionally, data were collected in an attempt at triangulation of the "classification criteria."

4.5.1 Summary of the Data Collected

Table 4-15 summarizes the data that were collected in this round regarding the participants' reactions to both the results and the study in general. Unfortunately, the response rate to this round was much lower than I would have liked. The Non-Hoshin and Hoshin-Theorist groups both had four respondents while the Hoshin-Practitioner group only had three respondents. I am not sure the results would have changed much had the response rate been higher, but I would have liked to seen them just the same.

The participants were asked to provide a rating on a scale from 1 to 5, of (1) the degree to which they felt the results of the study were valid and (2) their degree of satisfaction with the list of root causes that generated by their group. These ratings are listed in the second and third columns of Table 4-14 respectively. Additionally, any qualitative comments that were made by the respondents are listed. The shaded rows represent the "averages" for each of the three groups and the last row shows an "overall average" for all of the respondents.

Table 4-15: Summary of the Data Collected From the Participants Regarding their Reactions to the Results

Group	Validity	Satisfaction	Comments
Non-Hoshin	4	4	These represent the "averages" for the Non-Hoshin group
	4	4	
	4	4	I plan on sharing the results of your study with our QPIC and shipyard strategy board. I believe it will help us better understand the delays we have encountered and hopefully help us to refocus
	4	4	Overall, I think the effort was a good one, and I'm pleased to have been a part of it. How did you validate the fact that certain organizations are "Hoshin" and others are not? In the statistical test table there were 8 areas with no significant difference and 6 with a significant difference, yet the overall result was yes - a significant difference. Perhaps I should wait for the final report.
	4	4	I guess I would feel better if the sample size was a little bigger. In my own case, through luck or whatever, we didn't have some of the problems caused by some of the root causes identified. So there are probably some there that apply to organizations other than our own. I just wonder if a little larger sample size would damp out that effect enough so there could be better confidence in the results. On the other hand, I feel the study was very well structured / thought out, was very well coordinated, and got the most out of its participants.
Hoshin-Practitioner	4	4	These represent the "averages" for the Hoshin-Practitioner group
	4	4	Even though I could not submit a timely reply to all of the study rounds, I feel you have kept me informed.
	4	4	
	4	4	
Hoshin-Theorist	4	3.5	These represent the "averages" for the Hoshin-Theorist group
	4	4	Excellent job. Could easily produce a number of quality articles.
	4	4	I found your study to be very interesting and I appreciate your selecting the topic. I wonder if the results would have been the same if all of the participants were put in a room together for a day and asked the same questions. Also, I am curious to know how difficult it was to do the research via the fax process over such a long period of time. Did everyone meet the schedules you requested? Would you recommend this approach to others? At some point, I would like to discuss the process aspects of the study. Thanks for asking me to participate.
	4	4	
	4	2	I'm not clear what the "scales" are. Some comments seem contradictory. I'm not sure that we all interpreted the criterion the same.
Overall Average	4	3.8	These represent the "overall averages" for all of the respondents

Table 4-16 summarizes the data collected regarding the "classification criteria" that were used by this study. The participants were given a list of seven criteria. For each of the seven items, they were asked whether the criterion described their organization as a whole or not. As they were worded, the seven criteria on the list were meant to describe a "Hoshin" organization. Therefore, I would have expected the Non-Hoshin group, in general, to respond with no's and the Hoshin-Practioner group to respond, in general, with yes's. The results for these two groups are portrayed below. (As mentioned, the response rate for this round was very low.) While it is hard to draw any definitive conclusions from the data, I believe that in general, the results turned out as would have been expected.

Table 4-16: Summary of the Classification Criteria Data

Group	1	2	3	4	5	6	7
Non-Hoshin							
Respondent 1	No	No	No	No	No	No	No
Respondent 2	No	No	Yes	No	No	Yes	No
Respondent 3	Yes	Yes	No	No	No	Yes	No
Respondent 4	Yes	Yes	Yes	No	No	Yes	Yes
Hoshin-Practitioner							
Respondent 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Respondent 2	Yes	No	Yes	No	Yes	Yes	No
Respondent 3	Yes	Yes	No	Yes/No	Yes	Yes	Yes/No

4.6 Variables That Could Have Affected the Results

The test of this study's research hypothesis led us to fail to reject the null hypothesis. However, there are a number of variables that potentially could have affected the outcome of this test. The following are my speculations as to some of the variables, or relationships, that could have affected the results of my study.

4.6.1 Selection of Organizations

One such variable could have been the manner in which organizations were selected to participate in the study. As previously mentioned, organizations were selected based on my "access" to them rather than through some random process. This potentially could have resulted in samples that weren't representative of the population as a whole.

Another possible variable is the process by which I identified organizations as *potential* participants in the study. That is, how I chose organizations that I'd like to have represent the two groups (Non-Hoshin and Hoshin-Practitioner). This was done through the use of a set of "classification criteria" and expert opinion as explained in chapter three. The potential problem is that if these criteria weren't well enough defined or the experts "misjudged" the organizations based on these criteria, you could have organizations that are classified incorrectly, thereby affecting the study's results.

4.6.2 Selection of Individuals

A similar variable that potentially could have affected the results is the method by which individuals were selected to represent the organization. Again, they were chosen based on my "access" to them and their "willingness" to participate. The potential problem lies in the fact that these individuals may not be representative of their organization as a whole. Perhaps they don't have the visibility to know what's actually going on and therefore their perceptions are quite different from reality. Or maybe, for one reason or another, they were just more frustrated with the efforts than the organization as a whole and therefore rated their "degree of struggling" with the root causes higher than would normally be expected.

4.6.3 Small Sample Size

The sample sizes of the two groups involved in the statistical tests were actually quite small and perhaps because of this, one or both of the groups (Non-Hoshin / Hoshin-Practitioner) didn't accurately represent their population.

4.6.4 Life-Cycle Issues

Perhaps there were differences in the "average" organizational life cycles of the two groups. That is, maybe the majority of organizations in one of the groups were much more "mature" / "immature" than the those in the other group. This could possibly impact the nature of their strategic planning, TQM, or other large-scale change efforts, thereby affecting the results of the study.

4.7 Validity and Reliability of the Results

There are a number of measures discussed in the literature for evaluating the results of a research study. Two that have received a great deal of attention are validity and reliability. I will briefly discuss construct validity, external validity, and reliability along with some of the tactics I used to address these issues.

According to Yin (1989), *construct validity* refers to the correct establishment of operational measures for the concepts being studied. One tactic that was used to address this issue was the definition of important constructs (e.g. "loss of momentum") in the letters that were sent to the participants with each round. Additionally, two rounds of the study asked the participants to identify items which they didn't understand so that further clarification could be provided. Furthermore, participants were asked to contact the researcher with any questions regarding a particular item or the study in general.

External validity refers to "establishing the domain to which the study's findings can be generalized (Yin, 1989). The first tactic used was to acknowledge the fact that generalizability may be limited due the sampling procedure and the small sample sizes. Secondly, a set of "classification criteria" was used in conjunction with expert opinion to classify the participants as either Non-Hoshin, Hoshin-Practitioner, or Hoshin-Theorist. Data were also collected from the participants themselves regarding these criteria as an attempt at triangulation.

Reliability involves "demonstrating that the operations of a study - such as the data collection procedures - can be repeated, with the same results" (Yin, 1989). The tactic used here was to follow the protocol for the Delphi technique. Additionally, the methodology employed by this study was described in detail in Chapter Three so that it could be replicated if so desired.

CHAPTER FIVE: CONCLUSIONS

The purpose of the previous chapter was simply to summarize the results of the study in a manner that yields answers to the research questions. That is, convert data to information. This chapter seeks to interpret those results, to search for the broader meaning of those answers by linking them to other available knowledge. It attempts to go beyond the facts and data, to draw conclusions by integrating our wisdom, experience, and intuition with others areas of knowledge. In other words, it looks to convert information into knowledge.

As you will recall, this study found no evidence to support the claim that the Hoshin-Practitioner group struggled with the "root causes" to a lesser degree than did the Non-Hoshin group. However, I still feel that the results suggest that the topic warrants additional investigation. The resultant p-value of .0522 was extremely close to the significance level of .05 that was set prior to collection of the data. Furthermore, I was able to identify a number of recurring themes, or "trends," in the data. Based on my knowledge of the literature, I believe that there are several "key characteristics" of a Hoshin-style planning system that help organizations to maintain momentum during implementation and deployment. Each of the sections in this chapter attempts to integrate these "key characteristics" with the "trends" in the data and then tie them to other areas of knowledge in an effort to draw some conclusions as to why Hoshin organizations might actually struggle with the root causes to a lesser degree.

I feel its important at this point to make the reader aware of several caveats regarding the generalizability of the conclusions of this study. First, it should be kept in mind that "all generalizations from samples to populations, rest on the assumption that the samples are not biased -- that is, that the cases to be included in the samples have been selected by some procedure that gives every case in the population an equal,

or at least a specifiable, chance of being included in the sample" (Selltiz, Wrightsman & Cook, 1976). As has been previously noted, this was not the case. Participants (both the organizations and the individuals within each organization) were selected based on my "access" to them and their "willingness" to participate. Secondly, is the issue of sample size -- which also affects our ability to generalize. The sample size of twelve (seven Non-Hoshin and five Hoshin-Practitioners) used in the statistical tests is actually quite small. Therefore, as one reads this chapter, he/she must keep in mind that there exists the possibility that the sample used in this study doesn't accurately represent the population, thereby limiting our ability to generalize the conclusions beyond organizations similar in nature to those involved in the study.

5.1 Creating Organizational Focus

One of the major trends that I identified among the lists of root causes was that a number of the items pointed toward "the lack of organizational focus" as a serious obstacle to maintaining momentum during implementation and deployment. I believe that a Hoshin-style planning system helps organizations to maintain "focus." A brief exploration of systems theory will help explain my reasoning behind this conclusion.

5.1.1 A Look at Systems Theory

Back in the 1950's, von Bertalanffy introduced the concept of general systems theory, proposing that the sub-components of a system are all interrelated with one another as well as with the environment. Furthermore, he suggested that the differentiation (the breaking down or dividing apart) of a system is much easier than integration (coordinating or bringing together). It is easy to differentiate the organization's efforts, breaking a task down into pieces and then distributing those pieces to various departments or individuals. It is much harder however, to integrate

these pieces back into a whole, to focus the energies of the various sub-components on creating an integrated, synergistic end result. I believe that the key to "organizational focus" lies in the ability to both differentiate and integrate the organization's efforts while maintaining an appreciation for the interrelatedness of the various sub-components of the *entire* system.

5.1.2 The Focus Created By Hoshin Kanri

Looking at a Hoshin-style planning system, we find that there are a number of mechanisms to help ensure both differentiation and integration while maintaining an appreciation for the entire system. One such mechanism is the "catchball process" in which matrices are cascaded down through the organization and then "rolled" back upward (See Figure 5-1). These matrices "focus" on the strategic objectives of the organization as well as the means by which to accomplish them. The downward deployment of the matrices represents the "differentiation" of the strategic plan. Once the flow is reversed and the matrices are rolled back upward (cross-functionally eliminating redundancies, duplications, and conflicts), the process has turned its attention to "integrating" the plan. Because the matrices are deployed level by level and then rolled back upwards in a similar manner, the process is able to maintain a systems perspective throughout by "focusing" on the same strategic objectives at all levels. Additionally, the upward flow involves a monitoring of the matrices cross-functionally to identify and remove redundancies, duplications, and conflicts.

Another mechanism (or key characteristic) of Hoshin Kanri that helps with integration is the visible management system (VMS). "An American football team shares a vision -- score touchdowns and win games. The quarterback, the fullback, and the linemen all know the location of the goal line they need to cross. All their actions are directed toward crossing that goal line. Most organizations are confused

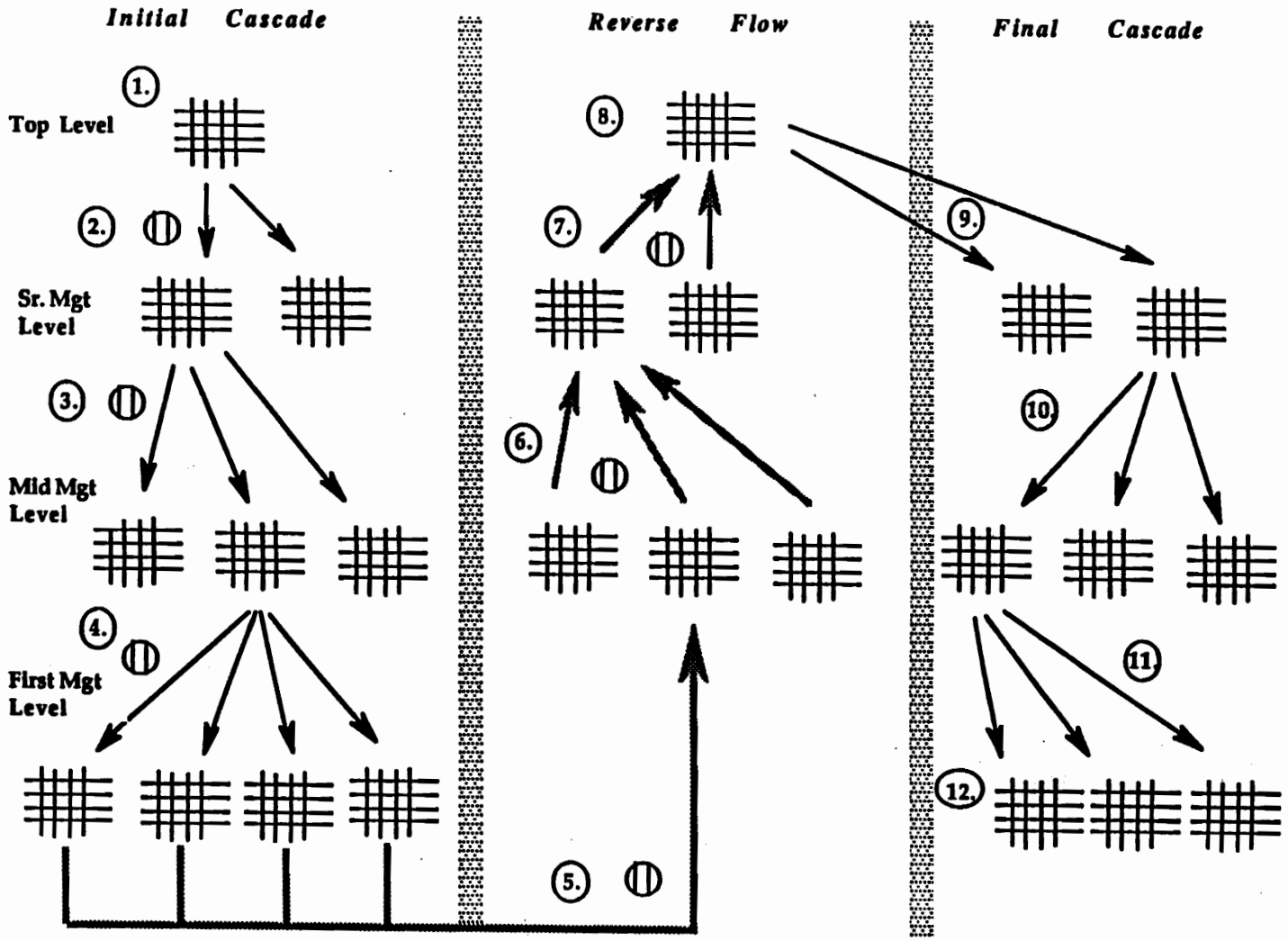

Figure 5-1: The Flow of Matrices in a Hoshin Planning System (taken from GOAL/QPC, 1993)

about their goal line" (Belasco, 1990). The VMS employed by Hoshin organizations helps everyone in the organization to "see" the company's overall plan, to see the goal line. A major component of a VMS are "visibility boards" -- located throughout the organization in work areas, meeting rooms, or other areas of high visibility. These boards make the linkages between organizational, group (e.g. departmental), and individual goals visible, helping everyone in the organization to understand how their own efforts as well as the efforts of their entire group, department, etc. contribute to the overall goals or vision of the organization. They help ensure that the entire organization is working toward the same "goal line."

5.2 Generating Commitment for the Effort

Another major trend that I identified in the data is the problem associated with a lack of commitment to the effort. When people are not committed to the plan, momentum is almost impossible to maintain. I believe this trend is related to the issue of motivation. A number of comments were made addressing motivation. For example, one of the top root causes on the Hoshin-Theorists' list was "Strategic thinking and doing are not currently rewarded sufficiently to warrant the effort." In response to this root cause, one of the participants mentioned that "The entire rewards and motivation systems need to be addressed." Additionally, in response to the root cause "Leaders / Leadership teams without the appropriate skills to develop the plan and then deploy it," one participant mentioned that "People have the skills or can acquire them. It is motivation and commitment that are lacking." Furthermore, there are numerous root causes throughout the three lists that indirectly address the issue of motivation such as "Conflicts in the prioritization among daily must do assignments and planning objectives" and the "Inability to bring key people into the effort."

I feel that a Hoshin-style planning system helps to motivate people to participate in "the effort" thereby generating commitment for it. Perhaps a brief discussion of two motivation theories would be useful to understanding why I believe this to be so.

5.2.1 Motivation Theories

There are many theories of motivation in the literature, however, expectancy theory and job characteristics theory seemed to be most relevant to the situation. Therefore, I chose the two of them to help me explain my belief that Hoshin Kanri helps generate greater commitment for a planning (or other large-scale change) effort.

5.2.1.1 Expectancy Theory

According to the theory, people *attempt* to maximize their satisfaction. It does not contend that people *will* actually maximize their satisfaction, since most of the time we have to operate on our *beliefs* in cause-and-effect relationships rather than our knowledge of them. The theory argues that one's motivation to engage in a certain behavior is based on three perceptions (or beliefs) of the individual: expectancy, instrumentality, and valence. The first, expectancy, refers to the individual's belief about whether his effort will lead to the achievement of a particular behavior. That is, if he puts out the effort, what is the likelihood (a subjective estimate) that he will be able to achieve the particular behavior? Instrumentality refers to the individual's perceptions (again a subjective estimate) of the consequences of a particular behavior. That is, what is the likelihood that a reward will follow if a particular behavior is achieved? Finally, valence refers to the degree to which the individual finds the potential rewards desirable. Figure 5-2 illustrates how the three perceptions of expectancy, instrumentality, and valence combine to influence the individual's overall level of motivation toward a particular behavior.

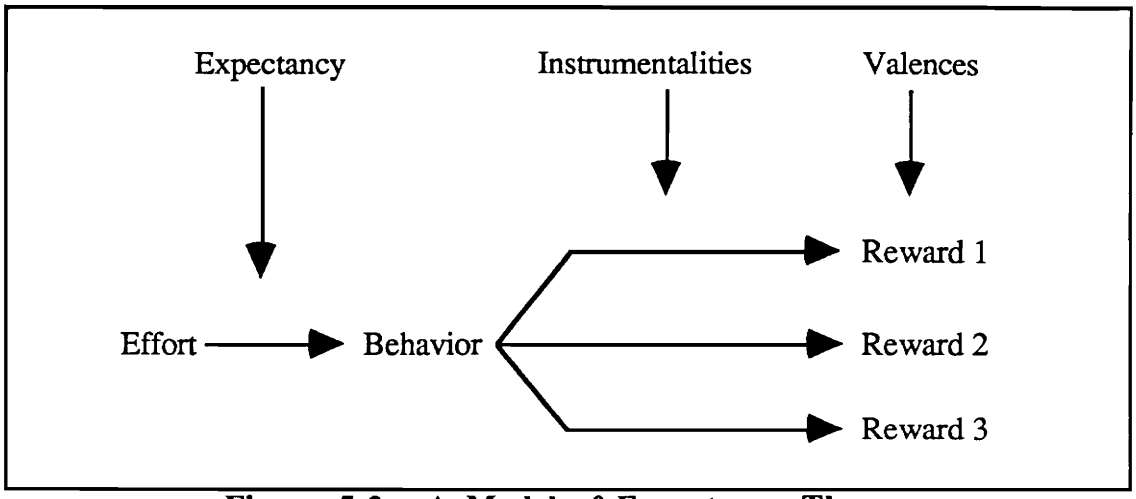

Figure 5-2: A Model of Expectancy Theory (Taken from Heneman et al., 1980)

The theory predicts that an individual will be motivated to engage in a behavior if he (1) believes there is a strong enough likelihood that his efforts will achieve the desired behavior (high expectancy), (2) believes there is a good possibility that the behavior will lead to rewards (high instrumentalities), and (3) finds the rewards desirable (positive valence).

5.2.1.2 Job Characteristics Theory

According to the theory, high internal work motivation and satisfaction are a result of three critical psychological states: (1) Experienced meaningfulness of the work; (2) Experienced responsibility for outcomes of the work; and (3) Knowledge of the actual results of work activities. The three core job characteristics contributing to the first of these critical psychological states are skill variety (involving a number of different tasks), task identity (allows the completion of a whole and identifiable piece of work), and task significance (having substantial impact on the organizational system or

society). Autonomy (independence in carrying out the work) and feedback (clear and direct information about performance) are the core job dimensions thought to contribute to the second and third critical psychological states, respectively (See Figure 5-3).

The model argues that the higher the degree to which the critical psychological states exist, the higher the probability that positive outcomes (e.g. motivation) will exist. Likewise, it suggests that a job containing a higher degree of the core job characteristics would be more motivating than a job with a lower degree of them.

5.2.2 Hoshin Kanri and Motivation

I believe that a Hoshin Kanri planning system positively affects individuals' motivation levels to engage in the "appropriate" or "desired" behaviors (those required for successful implementation and deployment), thereby generating greater commitment to the effort. This in turn, has the effect of *focusing* the efforts of the organization since people are committed to the same "appropriate" behaviors.

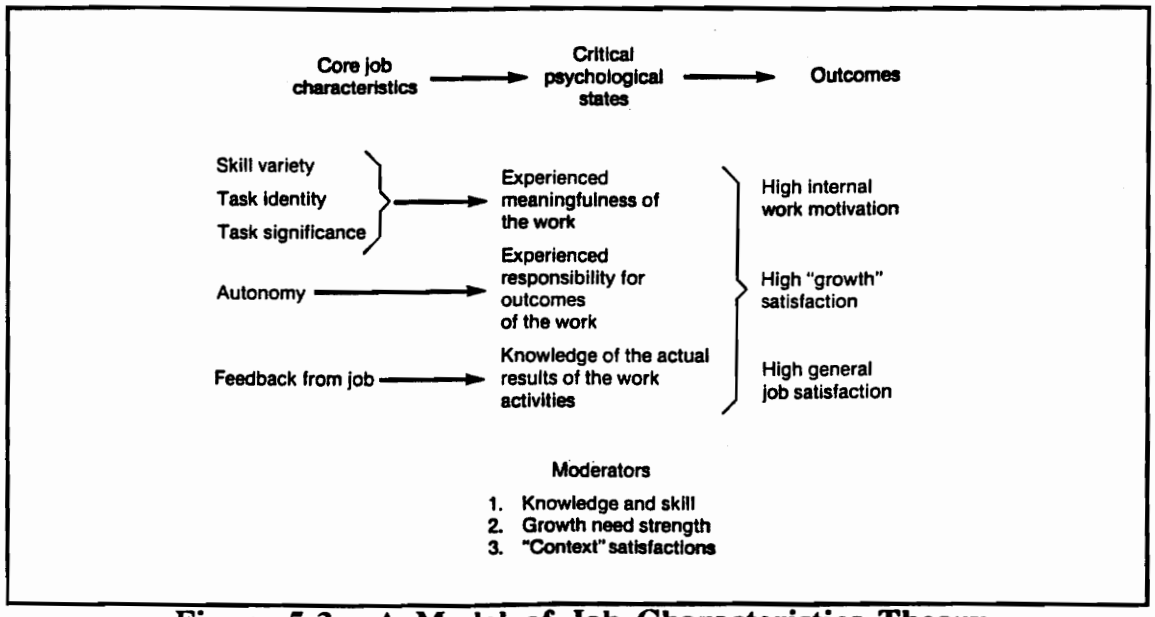

Figure 5-3: A Model of Job Characteristics Theory (Taken from Heneman et al., 1980)

As we can see from the expectancy model, the theory argues that the motivation to engage in a particular behavior is based primarily on "perceptions" of the individual. Perceptions represent our *beliefs* in the way things are, not necessarily the way they actually are. Hoshin Kanri employs a number of mechanisms that help to clarify these perceptions. By clarifying certain perceptions, the organization can increase individuals' motivation to engage in the "appropriate" behaviors.

The first such mechanism for clarifying perceptions is the visible management system. Making things visible (such as the strategic plan, key performance indicators, and the linkages between daily activities and the vision of the organization) helps clarify people's perceptions of what is actually happening. They can "see" whether their efforts are leading to a particular behavior (high expectancy) by tracking the performance measures. They can "see" what behaviors will lead to rewards (high instrumentalities) because the linkages are made clear. Then, the organization must ensure that the rewards are desirable (high valence). That is, it must concentrate on its motivation sub-system, making sure that it supports the effort.

A second mechanism employed by Hoshin Kanri that, I believe, clarifies perceptions and increases motivation is the catchball process. As you will recall, catchball is a process of negotiation among levels of the organization. Through this negotiation process, individuals come to have a clearer understanding of the "big picture." Once again, it helps them to "see" what behaviors will lead to rewards (high instrumentality) because the linkages are much clearer. They have been articulated through the negotiating among the various levels.

Examining the job characteristics model, we see that the theory argues that motivation is based on the existence of certain critical psychological states which result from the presence of several core job characteristics. I believe Hoshin Kanri employs a

number of mechanisms that increase the degree of these core job characteristics present in a particular job thereby increasing the level of the critical psychological states present and ultimately increasing the level of motivation to participate in the implementation and deployment effort. For instance, the visible management systems employed by Hoshin Kanri help to increase the degree of task identity for a particular job. While the individual may not actually complete the entire piece of work himself, his visibility of how his work fits into "the big picture" certainly is increased. Additionally, because key performance indicators are made visible, feedback from the job is increased.

5.3 A Disciplined Process For Managing Strategic Initiatives

One of the more interesting trends that I noticed in the data was the fact that the lists generated by the Non-Hoshin and Hoshin-Practitioner groups, in general, seemed to be at different "levels of specificity." That is, it appears as if the root causes generated by the Hoshin-Practioner group were more specific about the nature of the problem. I believe this might indicate that the group generating the more specific root causes, the Hoshin-Practitioner group, is *struggling with a process* to maintain momentum while the Non-Hoshin group doesn't even have a process to follow. It is like the difference between saying, "we have no method by which to maintain momentum " (Non-Hoshin group) and "we are having problems managing the method by which we maintain momentum " (Hoshin-Practitioner group).

Looking at the rest of the data that were collected, we find that there is much support for the argument that the Hoshin-Practioners are struggling with a process to maintain momentum while the Non-Hoshin group does not even have a process. For instance, the third ranked root cause (and receiving a vote from <u>every</u> participant in the group) on the Non-Hoshin group's list was "Lack of a process that plans, schedules, allocates resources and monitors implementation of each of the strategic initiatives."

Furthermore, they generated root causes such as "Lack of proper follow-up by top-management once the plan was developed," and "Problems with the architecture of the effort," both of which seem to me to indicate the lack of a process.

On the other hand, the list of "top" root causes generated by the Hoshin-Practitioner group did not appear to be as general. Instead of "lack of a process," there are items addressing "cross-functional trust and cooperation; multi-directional communication and understanding; and conflicts among the prioritization of daily 'must do' work assignments and planning objectives." This seems to indicate to me that this particular group has a process, but they are struggling with the "details" of managing it.

According to the literature, one of the major benefits of Hoshin Kanri is that it "creates an established process for executing breakthroughs year after year" (GOAL/QPC, 1990). This process is "disciplined," yet able to be both responsive and flexible. I would like to briefly discuss the issue of "discipline" to help explain why I believe Hoshin Kanri provides organizations with a "disciplined process" that helps them to maintain momentum during implementation and deployment.

5.3.1 Discipline

One definition of discipline that I particularly like is offered by M. Scott Peck in his enlightening book The Road Less Traveled. It should be noted that Peck was describing discipline as it applies to *individuals*, but I feel it applies to *organizations* as well. He defines discipline as a system of interrelated techniques required to face life's endless and ultimately inevitable series of challenges. Peck asks, "what are these tools, these techniques of suffering, these means of experiencing the pain of problems constructively that I call discipline? There are four: delaying gratification, acceptance of responsibility, dedication to truth, and balancing."

Delaying gratification is the process of scheduling pain before pleasure in order to get it over with so we can then sit back and enjoy the pleasure. Peck uses the example of a child letting his friend take the first turn at a game so he can enjoy his turn later. Acceptance of responsibility is the realization that we can't solve problems by hoping they'll solve themselves or by waiting for someone else to solve them for us. We can only solve problems when we say "This is my problem and it's up to me to solve it." Dedication to truth is the continual search for a better understanding of reality. "The more clearly we see the reality of the world, the better equipped we are to deal with the world. The less clearly we see the reality of the world - the more our minds are befuddled by falsehood, misperceptions and illusions - the less able we will be to determine correct courses of action and make wise decision." Balancing is the component of discipline that gives one flexibility. We must be able to delay gratification and look towards the future but also enjoy our lives in the present. We need to accept responsibility for problems in order to get them solved, but also realize when a problem truly belongs to someone else. We need to be dedicated to truth, but be able to hold it back when appropriate. In essence, balancing is the disciplining of discipline.

5.3.2 Hoshin Kanri as a "Disciplined" Process

The visibility created by a VMS helps employees at all levels of the organization make decisions and take actions based on the overall goals (or vision) of the organization rather than short-term pressures. In essence, it helps the organization to delay gratification. It helps people to see the "big picture," making it easier to endure the "pain" of the moment to realize the "pleasure" in the future. For example, it was identified that the investment in education, training, and development (ET&D) of employees at all levels appears to be critical to an organization's ability to maintain

momentum during implementation and deployment. By making the plan visible and keeping the "vision" in front of those making decisions, it makes it much easier for them to invest in longer-term (yet very important) strategies such as ET&D.

An additional benefit of creating visibility is that it helps create "accountability." When the plan is made visible, it is very clear to everyone who is responsible for what. It forces people to "accept responsibility" for the implementation of their piece of the plan. Furthermore, the review system employed by Hoshin organizations helps to hold people accountable by regularly checking on the progress that has been made.

When we are dedicated to truth, we continually seek out a better understanding of reality. A VMS helps people to understand cause-and effect relationships, to see the linkages among the different sub-components of the organization. Additionally, the use of quality tools helps employees throughout the organizations make decisions based on facts and data (reality) rather than their perceptions of the way things are.

Organizations, as do individuals, need to be flexible in their approach to discipline. They can't be so focused on the future that they forget about the needs of the present. Organizations must balance a long-term focus with the short-term need of staying in business. The VMS and review system help Hoshin organizations monitor how things are going, so everyone can make decisions and actions today that will keep the company in business <u>and</u> move it towards its vision of the future.

5.4 Education, Training and Development

Based on my review of the data that were collected, I feel that another key issue with respect to maintain momentum during implementation and deployment is the investment in education, training and development of the workforce at <u>all</u> levels of the organization. I believe several characteristics of Hoshin Kanri help to lay a foundation for the building of a "learning organization," one that harnesses the collective energy of

individuals throughout the company that are continually improving their level of knowledge, skills, and abilities.

5.4.1 The Call for Learning Organizations

Peter Senge (1990) addresses the need for a new paradigm of organizations. He calls for the development of "learning organizations, organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together." He points out that "the old days when a Henry Ford, Alfred Sloan, or Tom Watson *learned for the organization* are gone. In an increasingly dynamic, interdependent, and unpredictable world, it is simply no longer possible for anyone 'to figure it all out at the top.' The old model, 'the top thinks and the local acts,' must now give way to integrating thinking and acting at all levels."

5.4.2 Laying the Foundation

I believe Hoshin Kanri, with its emphasis on visibility and feedback, helps lay the foundation for the building of a learning organization. By making the strategic plan and key performance indicators visible, the organization helps its people learn what decisions and actions will contribute to the overall direction of the company. Additionally, the feedback people receive from the visibility of key performance indicators (as well as the regular review sessions) helps to facilitate their learning process. Furthermore, I believe a Hoshin organization, through its use of the catchball process, helps to harness the "creative tension" of individuals at all levels of the organization. "Creative tension comes from seeing clearly where we want to be, our 'vision', and telling the truth about where we are, our 'current reality'" (Senge, 1990).

By helping to create and "see" a *shared* vision, by making performance measures visible so people can see "where they are," I feel that the catchball process helps to take this energy generated by "creative tension" of individuals throughout the organization and focus it on achieving the same key objectives.

5.5 Summary of the Conclusions

Based on the findings of this research, my knowledge, my experience, and my intuition, I believe that Hoshin-style planning systems warrant significant attention on the part of American practitioners. The importance of organizations maintaining both "constancy of purpose" and "continuity of leadership" has received a great deal of attention in the literature. Sink and Morris (1994) argue that "consistency of method" is equally important. I believe that the success of Hoshin Kanri lies in the fact that it does a better job of addressing these three "critical success factors." Constancy of purpose is maintained through "visibility," allowing the organization to take a longer-term focus. Continuity of leadership is maintained through the use of a disciplined process. One of the participants in the study pointed out that the truly important issue is plan continuity, not leadership continuity. There are a number of mechanisms or "key design characteristics" of Hoshin Kanri that help to ensure plan continuity. Additionally, the disciplined process of a Hoshin-style planning system helps to ensure consistency of method by providing people with the knowledge, skills and tools by which to continually improve their performance as well as a process by which to "standardize" their improvements.

CHAPTER SIX: NEXT STEPS AND LESSONS LEARNED

This chapter is intended to address the question, "What's next?" It attempts to convert the knowledge that was gained into decisions and actions. There are four primary sections. The first discusses what I feel to be the "next steps" for practitioners in American organizations; the second presents some possible future areas of research; the third provides a discussion of some lessons that I learned as a result of conducting this study; and the final section presents a discussion on the evaluation of this research.

6.1 Next Steps for the Practitioner

Based on my knowledge of the literature, my intuition, and my experience with organizational improvement efforts, I feel that American organizations should begin transitioning toward a Hoshin-style planning system. This section presents a framework for accomplishing that objective.

The basic framework is comprised of four major phases: Preparing the organization to change; Focus on daily control; Alignment of organizational components; and Expansion of the Hoshin planning system. *These phases are not necessarily sequential, but will in fact probably overlap one another.* Based on the size and/or nature of the organization, these phases will vary in the length of time required and the degree of difficulty to accomplish. Some organizations may be able to implement the changes organization-wide while others will need to take a "pilot project" approach. Whatever the case, *the key is to start now!* The principles and concepts that will be learned in the early phases of the transition can be applied while the knowledge, infrastructure, and culture required by the later stages are still being developed.

6.1.1 Phase I: Prepare the Organization to Change

The first phase involves creating an *awareness* for the need to change. Lewin (1951) and countless others have addressed the need to "unfreeze," or prepare the organization for change. Commitment must be generated for the effort, particularly among top-management. This is where the "key people" must be brought on board and "restraining forces" removed.

This first phase requires a significant commitment on the part of the organization to education, training and development. "Change masters" must be developed, they must acquire the knowledge and skills required to lead and manage the transition. Management must begin to understand the Hoshin process (Appendix A contains a Hoshin reference list to get you started).

Furthermore, this phase must address certain aspects of the organization's culture that will be crucial to the success of later phases. There are several assumptions that must be met if "Hoshin deployment" and the "catchball process" are to be successful. First, there must be *dialogue without fear*. Management and employees must feel that they can truly talk to one another and share their feelings/ opinions without the fear of retribution. The organization must begin to build a culture of trust, cooperation, and interdependence. Second, there must be *mutual listening*. Management and employees must be willing to "hear" one another, to truly listen to what the other group is saying and what their needs are. The preparation phase must begin to lay the foundation for the high levels of trust and communication that will be required by the Hoshin planning process later on.

6.1.2 Phase II: Focus on Daily Control

The second phase of transitioning toward a Hoshin planning system involves creating daily control. People at all levels of the organization must begin to develop

"process awareness." That is, they must start to view their work in terms of "processes" and begin to develop an understanding of the "tools of quality." Then, they must begin to make incremental improvements on a daily basis and standardize those improvements.

The organization should start making the strategic plan, key performance indicators, and commitment of resources to the effort "visible" at this point. Individuals at all levels then need to begin to understand how to move from the data that is portrayed to decisions and actions that improve the organization.

6.1.3 Phase III: Alignment of Organizational Components

The next stage of transitioning to a Hoshin-style planning system involves the *alignment* of the organization's efforts. Here is where the organization "works" the Hoshin planning process. Alignment is achieved through the "catchball" process and the deployment of "matrices" downward through the organization. Additionally, an infrastructure must be employed in order to cross-functionally manage the organization's efforts.

There are a number of excellent resources that describe hoshin planning processes (Appendix A contains a resource list to get you started), however, they all seem to be comprised of three basic steps: Hoshin Generation; Hoshin Deployment; and a Hoshin Audit. The Hoshin Generation stage involves understanding both the internal and external environments, developing a vision, identifying the key elements of that vision, identifying potential "breakthrough" areas, and then selecting a breakthrough to focus on as the "hoshin" (strategic objective). The Hoshin Deployment stage involves developing annual objectives, developing target/means matrices, playing "catchball" with the matrices, and finalizing the plan. The Hoshin Audit stage involves conducting individual reviews, management reviews, quarterly reviews, and semi-annual reviews.

6.1.4 Phase IV: Expansion of the Hoshin Planning System

I believe organizations should start off slowly, focusing on a *single* "hoshin" (strategic objective) rather than diving in head first and identifying numerous hoshins to work on. This allows the infrastructure and culture time to develop and prevents people from becoming discouraged when things start to become "unfocused" once again. The final phase in transitioning to a Hoshin-style planning system is the expansion of the hoshin planning system to involve the deployment of the organization's entire strategic plan and multiple hoshins.

6.2 Next Steps for the Researcher

This section discusses some potential "next steps" for researchers. That is, it presents what I feel to be some of the possible areas for future research.

6.2.1 Larger Sample Size

The first "next step" I would suggest to future researchers would be to conduct this experiment again using a much larger sample size. The danger with generalizing many of the findings from this study is that the sample sizes of the groups were so small. It would be interesting to compare the results of this research with the results of a study involving a much larger sample size to see if they are the same.

6.2.2 Exploration of the Data by Type of Organization

One of the things not addressed by this research was the explanation of the results by type of organization. It would be interesting to determine if some of the findings were due to the differences between public and private organizations. Additionally, it

would be interesting to explore multiple data points from the same organization. Do they reflect the same view or are they different?

6.2.3 Further Investigation of the Root Causes

A third possible area of future research would involve the further investigation of the root causes that were generated. That is, it would be interesting to examine each of the root causes more in depth to find out exactly *why* they cause organizations to lose momentum during implementation and deployment. Furthermore, future research could investigate possible "responses" to each of these root causes.

6.2.4 Test for Causal Relationships

As previously mentioned, this research study was not designed to test causal relationships. "If we want to make causal inferences -- that is, to say that one variable or event has led to another -- we must meet assumptions over and above those required for establishing the existence of a relationship" (Selltiz, Wrightsman & Cook, 1976). This is one future area of research that would be useful.

6.3 Lessons Learned

This section presents a discussion of some of the lessons that I learned as I conducted this research study. Hopefully, it will help future students to avoid some of the pitfalls and roadblocks that I encountered along the way.

6.3.1 Choosing a Committee

The choice of committee members was for me, rather difficult. I was interested in finding members that would not only have the knowledge and experience I needed, but that would also work well with me and with each other. I believe that the time I

invested up front to choose a committee in this fashion definitely paid off in the long-run. A Committee that gets along well together can be your most valuable asset.

6.3.2 Preparation for the Defense

One of the critical success factors for a defense meeting is preparation. The student has to be prepared for any questions or concerns that the committee might throw at him/her. It really helps to think about these well in advance of the meeting. I scheduled individual meetings with each of my committee members prior to the defense meeting to address any concerns or questions they might have. Then, once in the meeting, I knew the major issues that might be raised and was prepared to address each of them. For the actual meeting, I developed a notebook that contained the required materials (i.e. overheads) to address these issues. In the front of the notebook was a matrix that listed each of the possible issues and indicated where in the notebook I could find the materials necessary to respond to that issue.

6.3.3 Discipline

Writing a thesis is hard and often lonely work, but it can also be very rewarding. Personal "discipline" is required to complete the effort. M. Scott Peck talks about the components of discipline in his book The Road Less Traveled. They are: delaying gratification, acceptance of responsibility, dedication to truth, and balancing. I believe that all four are necessary in order to successfully complete a thesis or dissertation. The student must be able to delay gratification, to suffer now for potential rewards in the future. He must accept responsibility for the effort - your committee is going to provide you with advice and guidance, not do it for you. The student must be dedicated to truth, that is, he must be open to learning new things and to revising his "map" of the way the world is. Finally, he must be able to balance all of these.

6.3.4 Manage Your Thesis Like a Project

I can't remember how many times I heard this from my committee chairman throughout the process of writing my thesis. One of the most important things you can do is to take some time at the outset and develop a project plan for completing your thesis or dissertation. This requires you to think through every detail of your research and plan it out. Take it from personal experience, if you don't have a *detailed* project plan to work from, it makes things much more difficult and time consuming than they have to be.

6.4 Evaluation of this Research

There are a number of ways in which this research can be evaluated. I have chosen a couple to discuss: the measures of success outlined in Chapter One; and the data that were collected from the participants in Round 5.

6.4.1 Measures of Success

One of the ways in which I can evaluate this research is by examining the degree to which I accomplished the "measures of success" that were outlined in Chapter One. These were measures that I established during the design phase of this work to be used to evaluate the success of the finished product. Based on these measures of success, the results of which are summarized in Table 6-1, I would evaluate this research effort as being successful.

Table 6-1: Evaluation of My Measures of Success

Measure	Achieved?
Effectiveness:	
• Did I satisfy my research objective?	Yes
• Was my thesis approved?	Yes
• Do I have a list of root causes of why organizations lose momentum during the deployment of their strategic plan?	Yes
Efficiency:	
• Did I use an appropriate amount of resources (ie. time, energy, etc.) in the completion of this project?	Yes
• Did I complete this project in the time frame I planned?	Yes
Quality:	
• Does my thesis add value to the Body of Knowledge?	Yes
• Did I learn anything?	Absolutely
QWL:	
• Did I have fun doing this research?	Yes
Innovation:	
• Was I able to integrate concepts into a unique approach to the problem?	Yes, integrated Hoshin Kanri, planning, and change management literature

6.4.2 Data Collected From Participants

One additional technique for evaluating this research was used. This involved collecting data from the participants themselves regarding their evaluations of the study. Round 5 was designed to collect both quantitative and qualitative data regarding the participants' reactions to the results and the study as a whole. Unfortunately, the response rate to this round was much lower than I would have liked. However, based on the data that *were* collected, I would conclude that the study could be considered successful. The data that were collected as an attempt at triangulation of the classification criteria came up, in my opinion, as inconclusive. Despite the fact that I tried to operationally define each of the seven criteria, I am not sure that everyone was using the same definition of them.

Appendix A:

Hoshin Resource List

Akao, Yoji (1991). *Hoshin Kanri: Policy Deployment for Successful TQM*. Cambridge, MA: Productivity Press.

Anand, K.N., J.N. Bhoraskar & R.N. Mulye (1993). Using Policy Management to Implement TQM. *Quality Progress*, 26(10), 89-93.

Eureka, William and Nancy Ryan (1990). *The Process-Driven Business: Managerial Perspectives on Policy Management*. Dearborn, MI: ASI Press.

GOAL/QPC (1988). Management by Planning, Policy Deployment, Management by Policy, Hoshin Kanri: Whatever the Name, It Spells (TQC) R-E-L-I-E-F! *Competitive Times*, Spring.

GOAL/QPC (1993). *Hoshin Planning*. Three-day course.

GOAL/QPC Research Committee (1990). *Hoshin Planning: A Planning System for Implementing Total Quality Management (TQM)*. 1989 Research Report, No. 89-10-03. Methuen, MA: GOAL/QPC.

Japan Management Association (1987). *Canon Production System: Creative Involvement of the Total Workforce*. Cambridge, MA: Productivity Press.

King, Bob (1989). *Hoshin Planning: The Developmental Approach*. Methuen, MA: GOAL/QPC.

Sheridan, Bruce M. (1993). *Policy Deployment*. Milwaukee, WI: ASQC Quality Press.

Sullivan, Lawrence (1988). Policy Management Through Quality Function Deployment. *Quality Progress*, 21(6), 18-20.

Appendix B:

Participation Matrix

Name	Organization	Round 1	Round 2	Round 3	Round 4	Round 5
Non-Hoshin 1	Department of Defense	X	X	X	X	X
Non-Hoshin 2	Department of the Navy	X		X	X	
Non-Hoshin 3	Norfolk Naval Shipyard	X	X	X	X	X
Non-Hoshin 4	Norfolk Naval Shipyard	X	X	X	X	
Non-Hoshin 5	Department of the Navy	X	X	X	X	X
Non-Hoshin 6	National Grocers					
Non-Hoshin 7	National Grocers	X	X	X	X	
Non-Hoshin 8	Department of the Navy	X	X	X	X	X
Hoshin-Practitioner 1	Dana Corporation	X		X	X	
Hoshin-Practitioner 2	Dana Corporation	X				X
Hoshin-Practitioner 3	Canon of Virginia	X	X	X	X	
Hoshin-Practitioner 4	Canon of Virginia			X		
Hoshin-Practitioner 5	Virginia Fibre	X	X	X	X	X
Hoshin-Practitioner 6	Our Lady of Lourdes			X	X	X
Hoshin-Practitioner 7	Intel					
Hoshin-Practitioner 8	Southwest Texas Hospital	X	X	X	X	
Hoshin-Theorist 1	Virginia Tech		X	X	X	X
Hoshin-Theorist 2	Virginia Tech	X	X	X	X	
Hoshin-Theorist 3	GOAL/QPC					
Hoshin-Theorist 4	GOAL/QPC	X	X	X	X	X
Hoshin-Theorist 5	Department of Defense	X	X	X	X	X
Hoshin-Theorist 6	Department of Energy	X	X	X	X	X
Response Rate by Round		73%	64%	82%	77%	50%

X - denotes participation in a particular round

Appendix C:

Materials Sent to Participants

Industrial and Systems Engineering, College of Engineering, Virginia Tech
560 Whittemore Hall, Blacksburg, VA 24061-0118
(703) 231-6466

Date: 30 January 1994
To:
Fax #:
From: Kurt Black
Fax #: (703) 231-6925

This message consists of 3 page(s) including this cover page. If you have any problems receiving any part of this message, please call (703) 231-6100.

Dear Potential Participant;

The world of business is becoming more and more competitive and organizations are increasingly looking to their strategic planning efforts to help them survive. However, as many organizations are beginning to realize, much more is needed than an eloquently worded strategic plan that sits on the shelf. Strategic planning *systems* are required that focus an organization's limited resources on it's vision of the future as well as the pressing requirements of success today. Strategic plans need to align the daily decisions and actions of everyone in the organization on the same "key" objectives. In order for this to occur, the organization's strategic plan must be successfully implemented and deployed throughout the organization. Unfortunately, this is where many organizations struggle.

As I mentioned in our phone conversation, I am a graduate student in Industrial & Systems Engineering at Virginia Tech and I'm conducting a research study to investigate the root causes of why organizations lose momentum during the implementation and deployment of their strategic plans. This memo is intended to provide a little more detail about my study. I hope you decide to participate, as it should be a significant learning experience for everyone involved.

Should you decide to take part in the study, you would be asked to respond to five correspondences (one every two weeks) beginning the first or second week of February. In each instance you will be assigned a task which should take approximately 15-20 minutes to complete. You will then be asked to return the task sheet to me via fax. Soon thereafter, you will receive a summary of all the participants' responses from the previous round along with your materials for the subsequent round. Upon completion of the final task, you will receive a copy of the final report summarizing the findings of the study.

If you decide to participate, I would like to encourage you to participate fully throughout the process. If at some point you are unable to return one of the forms, I will not be able to mail you the materials for the remaining rounds, and unfortunately, you will be removed from the study. The only expense to you is the small investment of your time required to complete the five tasks. In comparison, there are many things to gain:

- you will play an important role in the attempt to understand why so many organizations get bogged down in the implementation and deployment of their strategic plans;
- you will receive a copy of the Final Report summarizing the results of the study;
- you will learn a lot about the problems that other organizations are facing with respect to implementation and deployment;
- and you will learn how well other organizations are dealing with these problems as well as something about the solutions that are being used to address them which you can then use to help your own organization.

Your participation is strictly voluntary. If you wish to participate, please fax the final page of this memo back to me by Thursday February 3, 1994. If you have any questions regarding this study, please feel free to contact me at (703) 231-6466 or fax me at (703) 231-6925. Thank you very much.

Regards,

Kurt Black

Date: February ___,1994
To: Kurt Black
Fax #: (703) 231-6925
From: _____
Fax #: ( ) -

Dear Kurt,

Yes, I would like to participate in your study. I understand that I will be asked to complete five tasks (one every two weeks) and that each will require only 15-20 minutes of my time.

Name: _____

Organization: _____

Address: _____

_____

_____

Phone: ( ) -

Fax: ( ) -

Industrial and Systems Engineering, College of Engineering, Virginia Tech
560 Whittemore Hall, Blacksburg, VA 24061-0118

Date: 7 February 1994
To:
Fax #:
From: Kurt Black
Fax #: (703) 231-6925

This message consists of 3 pages including this cover page. If you have any problems receiving any part of this message, please call (703) 231-6100.

Dear Participant:

Thank you once again for agreeing to participate in my study. I am looking forward to having you share with me your knowledge and experience regarding the implementation and deployment of your strategic planning effort. This is the first of the study's five rounds.

TASK: The first task will be for you to generate a list of "root causes" leading your organization to lose momentum during the implementation and deployment of its strategic planning, TQM, or other large-scale improvement efforts.

Please use the following definitions to guide you as you generate your list:

(1) A "root cause" is that <u>most basic reason</u> for an undesirable condition or problem which, if eliminated or corrected, would prevent an undesired effect(s) from occurring or allow a positive effect(s) to occur. [Note that for our purposes, the undesired effects are implementation and deployment problems.] Root causes usually are defined in terms of specific or systematic factors. They're usually expressed in terms of the least common organizational, personal, or activity denominator. Care must be taken to distinguish symptoms clearly from causes, as well as apparent causes from root causes. Symptoms are the tangible evidence or manifestation(s) indicating the existence or occurrence of something wrong. Apparent causes represent the immediate or obvious reason for a problem.[1]

[1] Adapted from Wilson, P. F., L. D. Dell & G. F. Anderson (1993). *Root Cause Analysis: A Tool for Total Quality Management.* Milwaukee, WI: ASQC Quality Press.

(2) "Deployment" is the successful implementation of a strategic plan and/or large-scale improvement effort both vertically and horizontally in the organizational system. It involves the translation of upline plans, the alignment of downline plans, and the coordination of plans across functions or departments.

(3) "Loss of momentum" is easier to describe by way of example than with an ordinary definition. If an organization were losing momentum with respect to its strategic planning or large-scale improvement effort, we would expect to see the following types of things:

- the "stalling" of an initiative or an intervention
- interventions increasingly taking longer than planned
- the "failure" of improvement efforts
- interventions not having the desired impact
- interventions that aren't of the desired quality

As you generate your list, keep in mind the definition of a "root" cause. It's quality not quantity of the items that counts. Once all of the participants' responses have been analyzed, I will send you the task statement for the second round of this study. You should be receiving this on Monday February 21st. If you have any questions regarding this task statement or the study in general, please feel free to call me at (703) 231-6466 or fax me at (703) 231-6925. Thanks once again for your participation.

QUESTIONNAIRE 1 - RESPONSE FORM

(Please fax to me no later than Friday Feb. 11)

Date: February __,1994
To: Kurt Black
Fax #: (703) 231-6925
From: _____

This message consists of __ page(s) including this cover page.

Kurt,

The following is my list of root causes:

•

Industrial and Systems Engineering, College of Engineering, Virginia Tech
560 Whittemore Hall, Blacksburg, VA 24061-0118

Date: 21 February 1994
To:
Fax #:
From: Kurt Black
Fax #: (703) 231-6925

This message consists of 4 pages including this cover page. If you have any problems receiving any part of this message, please call (703) 231-6100.

Dear Participant:

Thank you once again for agreeing to participate in this research effort. We have completed the first of the study's five rounds. Your first task was to generate a list of "root causes" leading your organization to lose momentum during the implementation and deployment of its strategic planning, TQM, or other large-scale improvement efforts. I have taken an initial cut at combining some of the items and will ask you to recommend any additional combinations that you feel are appropriate. Where items have been combined, the group has been given a "heading" and all of the items in that group represent a single root cause. Items that are denoted with capitalized letters (A,B,C...) are these "root causes" that are under consideration while those denoted with lower case letters (a,b,c...) represent items that have been combined underneath another root cause or "heading." Currently, the items are not listed in any particular order, however this round will ask you to make an initial ranking of them. Please note that you will be provided an opportunity to rank these again in the subsequent round. I know that your time is important, so once again, this round has been designed to take you no longer than 10-15 minutes to complete.

ROUND TWO TASK:

Step 1: Your first task this round will be to look over the list of "root causes" generated in Round 1 and identify those that you need more clarification on. Please list these in the space provided on the response form.

Step 2: Identify those items that you feel should be combined / uncombined. Please list these in the space provided on the response form and indicate the recommended action (i.e. B combined under A)

Step 3: Identify any root causes that you feel should be added to the list.

Step 4: Go through the entire list of root causes and identify the ones you feel are important. List these in the space provided on the response form. Next, circle the letters of the nine items you feel to be the most important root causes. In doing so, please select only from the root causes (represented by the capitalized letters A,B,C,..). If you wish to choose a bullet beneath a major heading (represented by lower case letters a,b,c..) as one of your "top nine," then please uncombine it first using the procedure described in Step 2.

Step 5: After you have chosen your "top nine" root causes, move through the following steps designed to initially rank and weight them.

1. From the selected nine, chose the most important and write the letter of that root cause next to the number 9 in the last column of the response form.

2. From the eight remaining items, chose the least important and write the letter of that root cause next to the number 1.

3. From the seven remaining items, choose the most important and write the letter of that root cause next to the number 8.

4. From the six remaining items, choose the least important and write the letter of that root cause next to the number 2.

Continue on through this process, alternately selecting the most and least important items of those not already ranked. When you have finished, the nine items should be ranked from 1 to 9, with the most important getting a rank of 9 and the least important, a rank of 1. (This selection process is based on the principle that extremes are easier to judge than items in the center. Those items weighted 4 and 5 are probably rather close in importance.)

This completes your work for Round 2. Again, thank you for participating. Once all of the participants' responses have been analyzed, I will send you the task statement for the third round of this study. You should be receiving this on Monday March 7th. If you have any questions regarding this task statement or the study in general, please feel free to call me at (703) 231-6466 or fax me at (703) 231-6925.

The following is the list of root causes generated in Round 1:

A. Management actions that send an opposing message, contradictory to the verbal communications [failure to "walk the talk"]
B. The inability to completely close educational gap between early participants and newly trained employees - lack of a "formal" retention program
    a. Lack of education within the staff and support group, compounded by numerous changes in people and job responsibilities
    b. Numerous staff changes in relatively short periods of time
    c. Workforce inexperience and training†
C. Increased emphasis on high production goals
D. Lack of balance in staff authority level
E. Failure to convey authority "downward" through the organization
F. Failure to accept authority due to lack of accountability requirements
    a. Inability to hold managers / staff accountable
G. Growth in the business
H. Lack of clear understanding or education of purpose and tasks
    a. The inability to clearly task implementation
I. Higher degree of responsibility
J. The lack of "celebration" of successes
K. An inability to bring key people into the effort (i.e. physicians)
L. An overall misunderstanding of the philosophy and reality of empowerment
M. General slowness to accept significant change in old style management paradigms
N. Environmental uncertainty
    a. The fear of health care reform and the need for senior management to focus on more long-term issues instead of current planning implementation
O. The desire to realize immediate change and success - lack of patience
P. A large number of tactical objectives, many which are poor in quality
Q. Conflicts in the prioritization among daily "must do" work assignments and planning objectives
R. Don't attain the depth of penetration downline that is available
S. Technical education and training†
T. Supplier development and support†
U. Limited product research and development capability†
V. Multi-directional communication and understanding†
W. Cross-functional trust and cooperation†

† - one participant identified root causes that "limit the rate of momentum gain" rather than lead them to lose momentum

ROUND 2 - RESPONSE FORM

(Please fax to me no later than Friday Feb. 25)

To: Kurt Black Fax #: (703) 231-6925 From: _____

Step 1 (Clarification)	Step 2 (Combination)	Step 3 (Additions)	Step 4 (Selection)	Step 5 (Ranking)
				9. _____
				8. _____
				7. _____
				6. _____
				5. _____
				4. _____
				3. _____
				2. _____
				1. _____

Industrial and Systems Engineering, College of Engineering, Virginia Tech
560 Whittemore Hall, Blacksburg, VA 24061-0118

Date: 7 March 1994
To:
Fax #:
From: Kurt Black
Fax #: (703) 231-6925

This message consists of 4 pages including this cover page. If you have any problems receiving any part of this message, please call (703) 231-6100.

Dear Participant:

Thank you once again for agreeing to participate in this research effort. We have now completed two of the study's five rounds. **Please note that this round (which should take you no more than 5-10 minutes to complete) and the next round are the two most important rounds in the study.**

In Round 1, we generated a list of "root" causes leading your organization to lose momentum during the implementation and deployment of its strategic planning, TQM, or other large-scale improvement efforts. In the last round, we sought recommendations for items that needed to be clarified, combined or added to the list and then conducted a preliminary ranking procedure. The purpose of this third round is to provide you with the opportunity to revote based on the results of Round 2. Clarifications and additions that were requested have been made. In combining items on the list, I have done my best to take everyone's suggestions into consideration. However, I ran into a bit of a dilemma because in some cases there was a wide variety of suggestions (that often conflicted) as to how I should combine items. Therefore, I had to use my judgment as to how to best combine them to reflect the opinion of the majority of participants. The modified list is attached with the results of the preliminary voting located to the left of each item. The first number represents the number of votes that the item received while the second number represents the total points. For example, if an item received two votes for "most" important (a ranking of "9"), then it would be: 2/18.

ROUND THREE TASK:

Step 1: Go through the entire list of root causes and identify the ones you feel are important. List these in the space provided on the response form. Next, circle the letters of the nine items you feel to be the most important root causes. In doing so, select only from the root causes (represented by the capitalized letters A,B,C,..). Please realize that you are voting for all of the bullets underneath an item as well. As noted earlier, not everyone's suggested combinations could be incorporated, therefore compromises were made so that the list would reflect the opinions of the majority of the

participants. If anyone has major problems with the way in which the items are combined, please contact me. PLEASE NOTE: Items have retained the same letter designations as in the previous round.

Step 2: After you have chosen your "top nine" root causes, move through the following steps designed to initially rank and weight them.

1. From the selected nine, choose the most important and write the letter of that root cause next to the number 9 in the last column of the response form.

2. From the eight remaining items, choose the least important and write the letter of that root cause next to the number 1.

3. From the seven remaining items, choose the most important and write the letter of that root cause next to the number 8.

4. From the six remaining items, choose the least important and write the letter of that root cause next to the number 2.

Continue on through this process, alternately selecting the most and least important items of those not already ranked. When you have finished, the nine items should be ranked from 1 to 9, with the most important getting a rank of 9 and the least important, a rank of 1. (This selection process is based on the principle that extremes are easier to judge than items in the center. Those items weighted 4 and 5 are probably rather close in importance.)

This completes your work for Round 3. Again, thank you for participating. Once all of the participants' responses have been analyzed, I will send you the task statement for the forth round of this study. You should be receiving this on Monday March 21st. If you have any questions regarding this task statement or the study in general, please feel free to call me at (703) 231-6466 or fax me at (703) 231-6925.

The following are the results of Round 2:

(3/22) W. Cross-functional trust and cooperation†
(3/21) K. An inability to bring key people into the effort (i.e. physicians)
(2/18) A. Management actions that send an opposing message, contradictory to the verbal communications - Failure to "walk the talk"
(2/14) B. The inability to completely close educational gap between early participants and newly trained employees - lack of a "formal" retention program
- Lack of education within the staff and support group, compounded by numerous changes in people and job responsibilities
- Numerous staff changes in relatively short periods of time
- Workforce inexperience and training† - with respect to the planning or large-scale organizational change effort

(3/11) M. General slowness to accept significant change in old style management paradigms
(1/9) V. Multi-directional communication and understanding† - The challenge of creating an open atmosphere with individuals sharing information and expertise to achieve common goals
(2/9) T. Supplier development and support†
(2/7) H. Lack of clear understanding or education of purpose and tasks - individuals aren't shown the "big picture" and how their efforts contribute
(2/7) J. The lack of "celebration" of successes
(2/7) R. Don't attain the depth of penetration downline that is available
(1/5) Q. Conflicts in the prioritization among daily "must do" work assignments and planning objectives
(2/3) N. Environmental uncertainty
- The fear of health care reform and the need for senior management to focus on more long-term issues instead of current planning implementation

(1/1) O. The desire to realize immediate change and success - lack of patience
(1/1) P. A large number of tactical objectives, many which are poor in quality
(0/0) C. Increased emphasis on high production goals - A mentality of focusing only on results rather than improvement of the process
(0/0) E. Problems conveying authority "downward" through the organization
- Lack of balance in staff authority level - Causing problems with acceptance of authority
- Failure to accept authority due to lack of accountability requirements

(0/0) G. Growth in the business - Results in the organization losing its focus on its key objectives. It spreads itself too thin.
(0/0) I. Failure of individuals to accept a higher degree of responsibility
(0/0) L. An overall misunderstanding of the philosophy and reality of empowerment
(0/0) S. Technical education and training† - Allowing for expansion or interchanging of individuals' work related responsibilities
(0/0) U. Limited product research and development capability†
(0/0) X. The inability to clearly task implementation
(0/0) Y. Inability to hold managers / staff accountable

† - one participant identified root causes that "limit the rate of momentum gain" rather than lead them to lose momentum

ROUND 3 - RESPONSE FORM

(Please fax to me no later than Friday March 11th)

Date: March __,1994
To: Kurt Black
Fax #: (703) 231-6925
From: _____

Step 1: Selection	Step 2: Ranking
	9. _____
	8. _____
	7. _____
	6. _____
	5. _____
	4. _____
	3. _____
	2. _____
	1. _____

Industrial and Systems Engineering, College of Engineering, Virginia Tech
560 Whittemore Hall, Blacksburg, VA 24061-0118

Date: 21 March 1994
To:
Fax #:
From: Kurt Black
Fax #: (703) 231-6925

This message consists of 5 pages including this cover page. If you have any problems receiving any part of this message, please call (703) 231-6100.

Dear Participant:

Thank you once again for agreeing to participate in this research effort. We have now completed three of the study's five rounds. **Please note that this round is the most important round remaining in this study and should not take you more than 15-20 minutes to complete.**

In the previous rounds, we have generated and ranked a list of "root causes" leading your organization to lose momentum during the implementation and deployment of its strategic planning, TQM, or other large-scale improvement efforts. The purpose of this forth round is (1) to identify the degree to which you feel **your** organization struggles with each of these root causes and (2) to tap into your knowledge and experience with respect to the management of these root causes. Please note that the data listed on the following pages includes only those items for which there was a high degree of consensus among the group. That is, these are the "top priority" items as identified by the group through last round's voting procedure. Additionally, you may notice that there are several root causes on the list that you do not recognize. This is because the data generated from two separate groups have been merged into this single list (the reason for doing this will be explained later in the Final Report which will be distributed to all participants upon completion of the study). However, for the purposes of this round, this "merged" list will be treated as the prioritized list of root causes generated by the group. If you feel that you need further clarification of any of the "new" items on the list, please contact me before completing your response form.

Once all of the participants' responses have been analyzed, I will send you the task statement for the fifth and final round of this study. You should be receiving this on Monday April 4th. If you have any questions regarding this task statement or the study in general, please feel free to call me at (703) 231-6466 or fax me at (703) 231-6925.

Number of Participants = 7

(Note: As previously mentioned, this list represents the "merging" of two groups of data. Each group had 7 participants. However, one root cause - *denoted by* * - was generated by both groups and therefore, actually had 14 participants voting on it.)

n (number of "root causes" asked to vote for) = 9

Task Statement:

Step 1: For each root cause listed on the response form, there is a scale that ranges from 1 to 5. Please circle a number indicating the degree to which you feel **your** organization struggles with that particular root cause. *You must circle a number for each item.* Please use the following upon which to base your responses:

1 = My organization does not "struggle" at all with this root cause. That is, we have successfully managed this root cause and do not lose any momentum[2] during implementation and deployment because of it.
2 = We "struggle" slightly with this root cause.
3 = We "struggle" to a moderate degree with this root cause.
4 = We "struggle" quite a bit with this root cause.
5 = My organization extremely "struggles" with this root cause. We've completely failed at managing this root cause and lose significant momentum because of it.

Step 2: The "comments" section is intended to allow you to relate any knowledge and/or experience you have gained through your management of (or failure to manage) each of the root causes. Do you have any advice to offer others with respect to managing a particular root cause? What pitfalls can you point out? For example, if you circled a "1" on the scale for an item, are there any tips you can share that would help others manage that particular root cause as successfully as you did? What systems, programs, etc. do you have in place that have helped you succeed at this particular item? If you circled a "5" for an item, are there particular obstacles that you feel have prevented you from succeeding at it? What do you feel has caused you to struggle so much with that root cause?

This completes your work for Round 4. Again, thank you for participating.

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[2] Please recall what is meant by "loss of momentum." If an organization were losing momentum with respect to its strategic planning or large-scale improvement effort, we would expect to see the following types of things:

- the "stalling" of an initiative or an intervention
- interventions increasingly taking longer than planned
- the "failure" of improvement efforts
- interventions not having the desired impact
- interventions that aren't of the desired quality

ROUND 4 - RESPONSE FORM
(Please fax to me no later than Friday March 25)

To: Kurt Black Fax #: (703) 231-6925 From: _____

This message consists of 3 pages including this cover page.

ITEM	VOTES 9 = most important; 1 = least imp.	TOTAL # votes/ total vote score	SCALE (Step 1)	COMMENTS (Step 2)
Lack of commitment to the effort • Lack of commitment to change • Uncommitted leadership • Insufficient emphasis (priority) placed on the plan by top management as opposed to other day-to-day flaps • No support / commitment to the planning effort • Limited consensus building • Lack of support from headquarters (upline) • Just another program • No grass roots support	9-9-9-9-9-6-1	7 / 52	1—2—3—4—5 Not at all — Extr-emely	
Lack of mission focus / shared vision • Feeling of "Where are we going?" • No common vision • No long-term vision • Lack of a shared vision among team members creates a lack of enthusiasm and "in the box" thinking	9-9-8-8-8-7	6 / 49	1—2—3—4—5 Not at all — Extr-emely	
Inability to bring key people into the effort* • No union buy-in • No management / union partnership	9-9-7-5-4-4-2-2	8 / 42	1—2—3—4—5 Not at all — Extr-emely	

† Participant listed root causes which currently appear to be "limiting the rate of momentum gain" rather than leading his organization to "lose" momentum

Cross-functional trust and cooperation†	8-5-5-5	4 / 23	1—2—3—4—5 Not at all — Extr-emely	
Management actions that send an opposing message, contradictory to the verbal communications - Failure to "walk the talk"	9-7-4-2	4 / 22	1—2—3—4—5 Not at all — Extr-emely	
Multi-directional communication and understanding† - The challenge of creating an open atmosphere with individuals sharing information and expertise to achieve common goals	9-6-4-3	4 / 22	1—2—3—4—5 Not at all — Extr-emely	
The existing culture • Tradition • Not a standard part of meetings	8-7-6-1	4 / 22	1—2—3—4—5 Not at all — Extr-emely	
Conflicts in the prioritization among daily "must do" work assignments and planning objectives	7-6-4-2	4 / 19	1—2—3—4—5 Not at all — Extr-emely	
Lack of knowledge and skills for managing change • Poor senior management knowledge	5-4-4-3-2	5 / 18	1—2—3—4—5 Not at all — Extr-emely	
An overall misunderstanding of the philosophy and reality of empowerment	8-5-3-2	4 / 18	1—2—3—4—5 Not at all — Extr-emely	

† Participant listed root causes which currently appear to be "limiting the rate of momentum gain" rather than leading his organization to "lose" momentum

Lack of a process that plans, schedules, allocates resources and monitors implementation of each of the strategic initiatives • No recipe • No integrated planning and operations system that depends on strategic goals to operate • Poor "Front" coordination - Fronts are organizational subsystems such as Culture, Motivation, Planning, etc. that must be managed as a system	7-7-6-3-3-2-1	7 / 29	1—2—3—4—5 Not at all / Extr-emely	
Lack of lower-level involvement • Insufficient buy-in by the organization as the plan is being initially deployed - feeling of non-involvement • Upper management seen as only ones able to develop and provide solutions	8-7-6-4-3-1	6 / 29	1—2—3—4—5 Not at all / Extr-emely	
Poor understanding of and use of measurement in the planning process • Not using Quality tools • Poor measurement tools • "Measurement" concept not understood • Measurement is too hard / we don't need it • Inability to develop goals from a quantitative basis and failure to return to that basis when determining if the goal has been achieved	8-7-5-5-4	5 / 29	1—2—3—4—5 Not at all / Extr-emely	
The inability to completely close educational gap between early participants and newly trained employees - lack of a "formal" retention program • Lack of education within the staff and support group, compounded by numerous changes in people and job responsibilities • Numerous staff changes in relatively short periods of time • Workforce inexperience and training† - with respect to the planning or large-scale organizational change effort	9-6-4-3-1	5 / 23	1—2—3—4—5 Not at all / Extr-emely	

† Participant listed root causes which currently appear to be "limiting the rate of momentum gain" rather than leading his organization to "lose" momentum

Industrial and Systems Engineering, College of Engineering, Virginia Tech
560 Whittemore Hall, Blacksburg, VA 24061-0118

To:
From: Kurt Black

Dear Participant:

Thank you once again for agreeing to participate in this research effort. In the previous rounds, we have generated and ranked a list of "root causes" leading your organization to lose momentum during the implementation and deployment of its strategic planning, TQM, or other large-scale improvement efforts. You were then asked to identify the degree to which you feel **your** organization struggles with each of these root causes as well as to share any knowledge / experience you may have with respect to the management of these root causes. This round is intended simply to collect some data regarding your reactions to this study. For example, do you feel the results are valid? Are you satisfied with the list of root causes that was generated? Included with this round are: a summary of the data collected, a discussion of this study's research hypothesis, and the results of the statistical tests that were run.

Task Statement:

Step 1: On the response form, you will find two scales ranging from 1 to 5. These scales correspond to the two statements below. Please circle the number on the appropriate scale that most closely corresponds with your reaction to the following statements:

1. I feel the results of this study are valid.
2. I am satisfied with the list of "root causes" that was generated by my group.

Step 2: Please provide any additional comments you may have regarding either the validity of the results of this study or your satisfaction with the list of root causes that was generated by your group. Also, please feel free to provide comments regarding the methodology that was used to collect the data, the analysis of the data, or anything else concerning your participation in this study.

Step 3: For each of the seven criteria listed on the response form, please indicate, by circling the appropriate response, which you feel apply to your organization's planning efforts *as a whole*. In other words, if the criterion only applies to one or two departments and not the entire organization, please circle "no."

This completes your work for Round 5. Again, thank you for participating. You should be receiving a copy of the final report sometime around the first week of May. If you have any questions regarding this task statement or the study in general, please feel free to call me at (703) 231-6466 or fax me at (703) 231-6925.

ROUND 5 - RESPONSE FORM
(Please fax to me no later than Friday April 29)

Date: April __,1994
To: Kurt Black
Fax #: (703) 231-6925
From: _____

Step 1:

	1	2	3	4	5
1. Validity of Results:	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
2. Satisfaction with List:	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

Step 2: Comments

Step 3:

1. *Participation* - planning process ensures that multiple levels of the organization are "truly" involved in the planning efforts	Yes	No
2. *Vertical Alignment* - mechanisms exist to ensure that the decisions and actions of individuals at all levels are focused on achieving the same organizational goals	Yes	No
3. *Horizontal Coordination* - coordinating mechanisms exist to integrate and manage plans across departments / functional areas	Yes	No
4. *Visible management system* - decisions and actions are based on facts and data that are visible to everyone, not just those making the decisions	Yes	No
5. *Strategic Planning and Daily Work Linkages* - mechanisms exist for integrating the organization's planning efforts with individuals' daily work activities	Yes	No
6. *Review System* - regular reviews (focusing on both the planning process and results) ensure that implementation is successful over the long-term	Yes	No
7. *Quality Tools* - widespread understanding and use of the theories/tools of quality	Yes	No

Appendix D:

Output From Statview

	Classification	Root 1	Root 2	Root 3	Root 4	Root 5	Root 6	Root 7	Root 8
1	Non-Hoshin	4	4	3	4	4	5	4	3
2	Non-Hoshin	3	3	2	1	4	5	4	3
3	Non-Hoshin	5	4	3	4	5	4	5	4
4	Non-Hoshin	2	2	4	3	4	4	2	3
5	Non-Hoshin	2	1	2	1	2	3	2	4
6	Non-Hoshin	4	4	4	3	4	4	5	5
7	Non-Hoshin	1	4	4	3	1	4	1	1
8	Hoshin-Prac...	3	2	1	2	3	1	4	3
9	Hoshin-Prac...	2	3	3	1	2	2	3	2
10	Hoshin-Prac...	2	1	3	2	3	3	3	2
11	Hoshin-Prac...	2	2	2	2	2	2	3	3
12	Hoshin-Prac...	2	1	2	2	3	3	3	3

	Classification	Root 1	Root 2	Root 3	Root 4	Root 5	Root 6	Root 7	Root 8
Type:	Category	Integer	Integer	Integer	Integer	Integer	Integer	Integer	Integer
Source:	User Entered	User Entered	User Entered	User Entered	User Entered	User Entered	User Entered	User Entered	User Entered
Class:	Nominal	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Format:	•	•	•	•	•	•	•	•	•
Dec. Places:	•	•	•	•	•	•	•	•	•
Mean:	•	2.667	2.583	2.750	2.333	3.083	3.333	3.250	3.000
Std. Deviation:	•	1.155	1.240	.965	1.073	1.165	1.231	1.215	1.044
Std. Error:	•	.333	.358	.279	.310	.336	.355	.351	.302
Variance:	•	1.333	1.538	.932	1.152	1.356	1.515	1.477	1.091
Coeff. of Variation:	•	.433	.480	.351	.460	.378	.369	.374	.348
Minimum:	Non-Hoshin	1	1	1	1	1	1	1	1
Maximum:	Hoshin-Prac...	5	4	4	4	5	5	5	5
Range:	1.000	4.000	3.000	3.000	3.000	4.000	4.000	4.000	4.000
Count:	12	12	12	12	12	12	12	12	12
Missing Cells:	0	0	0	0	0	0	0	0	0
Sum:	•	32.000	31.000	33.000	28.000	37.000	40.000	39.000	36.000
Sum of Squares:	•	100.000	97.000	101.000	78.000	129.000	150.000	143.000	120.000

	Root 9	Root 10	Root 11	Root 12	Root 13	Root 14	OVERALL	Input Column
1	3	3	4	4	3	4	52	
2	3	3	3	3	4	5	46	
3	5	3	5	4	4	5	60	
4	1	4	3	4	1	3	40	
5	4	2	3	3	1	3	33	
6	5	4	5	3	5	4	59	
7	3	1	1	2	1	1	28	
8	2	2	2	4	2	3	34	
9	2	2	3	4	2	2	33	
10	3	3	2	3	2	3	35	
11	1	3	2	2	2	2	30	
12	2	2	2	3	1	3	32	

	Root 9	Root 10	Root 11	Root 12	Root 13	Root 14	OVERALL	Input Column
Type:	Integer	Integer	Integer	Integer	Integer	Integer	Integer	Real
Source:	User Entered	User Entered	User Entered	User Entered	User Entered	User Entered	User Entered	User Entered
Class:	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Format:	•	•	•	•	•	•	•	Free Format Fixed
Dec. Places:	•	•	•	•	•	•	•	3
Mean:	2.833	2.667	2.917	3.250	2.333	3.167	40.167	•
Std. Deviation:	1.337	.888	1.240	.754	1.371	1.193	11.312	•
Std. Error:	.386	.256	.358	.218	.396	.345	3.266	•
Variance:	1.788	.788	1.538	.568	1.879	1.424	127.970	•
Coeff. of Variation:	.472	.333	.425	.232	.587	.377	.282	•
Minimum:	1	1	1	2	1	1	28	•
Maximum:	5	4	5	4	5	5	60	•
Range:	4.000	3.000	4.000	2.000	4.000	4.000	32.000	•
Count:	12	12	12	12	12	12	12	•
Missing Cells:	0	0	0	0	0	0	0	•
Sum:	34.000	32.000	35.000	39.000	28.000	38.000	482.000	•
Sum of Squares:	116.000	94.000	119.000	133.000	86.000	136.000	20768.000	•

Mann-Whitney U for Research Hypothesis
Grouping Variable: Classification

U	7.500
U Prime	27.500
Z-Value	-1.624
P-Value	.1044
Tied Z-Value	-1.627
Tied P-Value	.1038
# Ties	1

Mann-Whitney Rank Info for Research Hypothesis
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	55.500	7.929
Hoshin-Practitioner	5	22.500	4.500

Mann-Whitney U for Root 1
Grouping Variable: Classification

U	11.500
U Prime	23.500
Z-Value	-.974
P-Value	.3299
Tied Z-Value	-1.044
Tied P-Value	.2964
# Ties	3

Mann-Whitney Rank Info for Root 1
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	51.500	7.357
Hoshin-Practitioner	5	26.500	5.300

Mann-Whitney U for Root 2
Grouping Variable: Classification

U	6.500
U Prime	28.500
Z-Value	-1.786
P-Value	.0740
Tied Z-Value	-1.849
Tied P-Value	.0645
# Ties	4

Mann-Whitney Rank Info for Root 2
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	56.500	8.071
Hoshin-Practitioner	5	21.500	4.300

Note: These p-values are for two-tailed tests

Mann-Whitney U for Root 3
Grouping Variable: Classification

U	8.000
U Prime	27.000
Z-Value	-1.543
P-Value	.1229
Tied Z-Value	-1.612
Tied P-Value	.1070
# Ties	3

Mann-Whitney Rank Info for Root 3
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	55.000	7.857
Hoshin-Practitioner	5	23.000	4.600

Mann-Whitney U for Root 4
Grouping Variable: Classification

U	9.000
U Prime	26.000
Z-Value	-1.380
P-Value	.1675
Tied Z-Value	-1.429
Tied P-Value	.1531
# Ties	4

Mann-Whitney Rank Info for Root 4
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	54.000	7.714
Hoshin-Practitioner	5	24.000	4.800

Mann-Whitney U for Root 5
Grouping Variable: Classification

U	9.000
U Prime	26.000
Z-Value	-1.380
P-Value	.1675
Tied Z-Value	-1.426
Tied P-Value	.1539
# Ties	3

Mann-Whitney Rank Info for Root 5
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	54.000	7.714
Hoshin-Practitioner	5	24.000	4.800

Note: These p-values are for two-tailed tests

Mann-Whitney U for Root 6
Grouping Variable: Classification

U	1.000
U Prime	34.000
Z-Value	-2.680
P-Value	.0074
Tied Z-Value	-2.758
Tied P-Value	.0058
# Ties	4

Mann-Whitney Rank Info for Root 6
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	62.000	8.857
Hoshin-Practitioner	5	16.000	3.200

Mann-Whitney U for Root 7
Grouping Variable: Classification

U	16.000
U Prime	19.000
Z-Value	-.244
P-Value	.8075
Tied Z-Value	-.251
Tied P-Value	.8020
# Ties	4

Mann-Whitney Rank Info for Root 7
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	47.000	6.714
Hoshin-Practitioner	5	31.000	6.200

Mann-Whitney U for Root 8
Grouping Variable: Classification

U	9.500
U Prime	25.500
Z-Value	-1.299
P-Value	.1939
Tied Z-Value	-1.392
Tied P-Value	.1638
# Ties	3

Mann-Whitney Rank Info for Root 8
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	53.500	7.643
Hoshin-Practitioner	5	24.500	4.900

Note: These p-values are for two-tailed tests

Mann-Whitney U for Root 9
Grouping Variable: Classification

U	6.000
U Prime	29.000
Z-Value	-1.868
P-Value	.0618
Tied Z-Value	-1.922
Tied P-Value	.0546
# Ties	4

Mann-Whitney Rank Info for Root 9
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	57.000	8.143
Hoshin-Practitioner	5	21.000	4.200

Mann-Whitney U for Root 10
Grouping Variable: Classification

U	11.500
U Prime	23.500
Z-Value	-.974
P-Value	.3299
Tied Z-Value	-1.032
Tied P-Value	.3021
# Ties	3

Mann-Whitney Rank Info for Root 10
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	51.500	7.357
Hoshin-Practitioner	5	26.500	5.300

Mann-Whitney U for Root 11
Grouping Variable: Classification

U	6.500
U Prime	28.500
Z-Value	-1.786
P-Value	.0740
Tied Z-Value	-1.856
Tied P-Value	.0635
# Ties	3

Mann-Whitney Rank Info for Root 11
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	56.500	8.071
Hoshin-Practitioner	5	21.500	4.300

Note: These p-values are for two-tailed tests

Mann-Whitney U for Root 12
Grouping Variable: Classification

U	16.500
U Prime	18.500
Z-Value	-.162
P-Value	.8710
Tied Z-Value	-.175
Tied P-Value	.8607
# Ties	3

Mann-Whitney Rank Info for Root 12
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	46.500	6.643
Hoshin-Practitioner	5	31.500	6.300

Mann-Whitney U for Root 13
Grouping Variable: Classification

U	13.500
U Prime	21.500
Z-Value	-.650
P-Value	.5160
Tied Z-Value	-.675
Tied P-Value	.4998
# Ties	3

Mann-Whitney Rank Info for Root 13
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	49.500	7.071
Hoshin-Practitioner	5	28.500	5.700

Mann-Whitney U for Root 14
Grouping Variable: Classification

U	8.000
U Prime	27.000
Z-Value	-1.543
P-Value	.1229
Tied Z-Value	-1.609
Tied P-Value	.1077
# Ties	4

Mann-Whitney Rank Info for Root 14
Grouping Variable: Classification

	Count	Sum Ranks	Mean Rank
Non-Hoshin	7	55.000	7.857
Hoshin-Practitioner	5	23.000	4.600

Note: These p-values are for two-tailed tests

Appendix E:

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