Organizational Development Through the Implementation of Strategic Plans

Susan M. Eickhoff
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ORGANIZATIONAL DEVELOPMENT THROUGH THE IMPLEMENTATION OF STRATEGIC PLANS

by

Susan M. Eickhoff

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology

Western Michigan University
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December 1991
Organizations today need effective and efficient total organizational change strategies in order to ensure both short- and long-term organizational health. As a result of an organization being a multi-dimensional entity, the ingredients for its change strategy must necessarily be representative of all its dimensions such as business management, information system, behavior analysis, behavioral systems analysis, total quality management and statistical process control techniques. Those ingredients of a comprehensive change strategy exist but have not been put together into a totally integrated package so far. In the present study, a fully-integrated organizational change strategy was systematically employed with the goal of implementing the strategic plans of an organization while maintaining or improving present operations in a value-added approach as opposed to a cost-cutting approach.

These theories and techniques were systematically implemented at the organizational level, the sub-unit or team level, and the individual level, and with ad hoc problem solving teams. A simple, yet effective performance management system was developed for implementation. This framework included
goal-setting, establishing a simple organizational structure, implementing performance measurement and feedback systems, and ensuring that the reward systems were in place to maintain performance aligned with the pre-set goals.

A six-year study was conducted and positive results were obtained in terms of strategic plan implementations, operational, sub-unit and individual performance improvement and with the ad hoc problem solving teams. All results presented demonstrated a strong maintenance effect. AB type, case study designs were employed for each implementation within the study. This design was selected as the most effective type given the dual nature of the study, (a) to meet the needs of the organization, and (b) to meet the needs of the scientific community.
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Organizational development through the implementation of strategic plans

Eickhoff, Susan M., Ph.D.
Western Michigan University, 1991

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I would like to thank the XYZ Company's president and owner along with the members of the organization who contributed to this project and supported me in seeing it through.

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Special thanks go to Dr. Dale Brethower, my graduate advisor. His advice, support and friendship have helped me grow in a positive way in the field of Applied Behavior Analysis.

Very special thanks go to my parents, family and personal and professional friends for their love and support.

I am honored and pleased to dedicate this project to them.

Susan M. Eickhoff
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CHAPTER I

INTRODUCTION

A Practical and Theoretical Problem

Organizational change strategies focusing on one theory or one technology along with one solution component analysis have been the emphasis of most professional journal articles and case studies in the literature up to the present time. More specifically, behavior analysis and behavior systems analysis (Abernathy, Duffy & O'Brien, 1982; Brethower, 1972; Brethower, 1983; Brethower & Wittkopp, 1987; Brinkerhoff & Dressler, 1990; Christian, 1984; Daniels, 1989; Fulton & Malott, 1982; Garcia, Malott & Brethower, 1988; Gilbert, 1978; Hackman & Oldham, 1980; Odiorne, 1984; Rummler & Brache, 1990), business management and business information systems management (Athappilly, 1986; Bartlett, 1988; Goldratt, 1990; Greiner, 1972; Gumpert, Churchill & Lewis, 1983; Hrebinjak & Joyce, 1984; Kyd, 1988; Mathews, 1984), and total quality management and statistical process control theories (Moser, 1991; Peach, 1990; Sink, 1991; Walton, 1990; Wiggenhorn, 1990) have been theorized about and in some cases, have been tested and found effective in creating organizational changes in specific areas of organizations. However, utilizing any of these intervention theories and technologies individually to bring about organizational change in parts of a system creates imbalances in organizational growth as a result of sub-system maximization or sub-optimization (Brethower, 1982). Also, in most small
business organizations, there are time constraints established by their customers and their external environments which do not allow them the time necessary to implement change strategies in isolation or sequentially (Kumar & Gupta, 1991). Therefore, there is a need to develop and test an integrated package of theories and technologies designed to bring about effective and efficient total organizational change.

There are several reasons why one-theory and one-technology change strategies and one-solution component analyses have been primarily studied and employed in the past. First, component analyses were necessary to determine the effectiveness of a change strategy and to define the functional relationships which caused the change. Successes in those attempts encouraged researchers and practitioners to take on additional and more challenging organizational change projects. Second, researchers and practitioners in each discipline focus primarily upon the theories and technologies developed and utilized in their own field of study. As a result, they are not familiar or comfortable with combining the works of other disciplines with their own. Third, rarely will a small business owner or manager grant a researcher, consultant or manager the opportunity to simultaneously work on implementing change strategies in every area of the organization, and at every level of the organizational hierarchy. In addition, only few small business owners will allow a change agent to publish research about their total organizational change process as it might divulge the confidentiality regarding both their innovative strategies employed to better serve their customers and their past organizational performance results. A great deal of trust must be earned by the change agent from the small business owner in order to undertake a responsibility of such magnitude. Perhaps the
most prohibitive reason why totally-integrated organizational change strategies are not often carried out or noted in the literature is that they typically take years to implement; then they require high costs in terms of manpower, data collection, and maintenance; and they require a long term commitment from the change agent and the organization.

Today, small businesses must undergo rapid and continuous total organizational change in order to meet their customers' current and future product and service needs and expectations (Kumar & Gupta, 1991; McNair, Mosconi & Norris, 1989). Customers expect the organizations they deal with to be the best in their business and demonstrate continuous improvements in performance in terms of providing quality products and services, on time, and within their cost constraints. They also expect to see that organizations are continuously reinvesting time, money and energy in developing new products and services, implementing new technology, machinery and facilities, improving management and information systems, and establishing highly effective human resource development programs. As a result, small business owners need a fully-integrated strategic and operational "change strategy in order to effectively and efficiently manage this change process" (McNair, Mosconi & Norris, 1989; p. 2).

An Integrated-Organizational Change Approach

In the present research, the author attempts to develop a fully-integrated organizational change plan. First, Gilbert's (1978) strategy was employed to search for exemplary theories, techniques and studies in each of the key areas and logically sequence them. These areas included: business management,
business information systems, behavioral systems analysis, behavioral analysis, total quality management and statistical process control. Gilbert (1978) defines exemplary performance as "the worth of the historically best instance of performance" (p. 30). Once the exemplars are selected, they can then be supported by related articles and similar findings or logical extensions. Then, the logical sequence of implementing these theories is to start with the ultimate goal of the organization (i.e., the mission statement) and work downward while also working from the total system to the smallest sub-system (Brethower, 1972; Malott & Garcia, 1987). Thus, the fully-integrated organizational change plan begins with business management theory and strategic planning specifically. See Table 1 for a depiction of the fully-integrated organizational change approach.

**Business Management and Business Information Systems Theories and Techniques**

Business management and business information systems theories and techniques in general focus on several key areas. The establishment of a mission statement for the organization in terms of the market needs and demands along with a strategic plan are the key activities found in the business management literature. Strategy implementation plans which support the overall strategic plans also can be found. Business information systems theories and techniques provide logical methods for establishing computer-based information systems that enable organizations to function effectively and efficiently by providing the managers the necessary tools to review actual performance in relationship to preset goals. Specific models of exemplar strategic planning, strategy implementation and business information systems
Table 1

An Integrated Organizational Change Approach

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models follow.

Bartlett (1988) provides a thorough outline regarding the key variables required in a sound strategic plan. These key variables include: a mission statement, a strategic assessment, environmental assessment, an internal analysis of strengths and weaknesses, strategic alternatives and strategies, structure and strategic control systems. Each of these key variables is supported by several sub-variables which need to be addressed. It is the mission statement, however, that is the most critical of all variables since all other variables are defined in support of it.

The importance of clearly defining the mission statement is reiterated by many authors. Lincoln (1951) states that the primary goal of industry must be "to make a better and better product to be sold to more and more people at a lower and lower price. Profit, therefore, will and must be a by product of service only" (p. 14). Malott and Garcia (1987) employ a "goal-directed design" for establishing effectively functioning organizations in which they
state that the first step is to "determine the ultimate goal of the organization" (p. 135), and then to develop intermediate and logistic goals. Goldratt (1986) in his book entitled The Goal states that the goal is "a process of ongoing improvement" (p. 1). Likewise, Heller (1991) states that the mission of his company, Advanced Circuits, Inc. is "to exceed our customers' expectations by continuously improving our quality and reducing our cycle time, through total employee supplier and customer involvement" (p. 26). Heller's 1991 company mission statement appears to be a summary mission statement of each of the aforementioned.

Bartlett's (1988) strategic planning process can be a key success factor in aiding small businesses in transitioning successfully through the change process. Putting strategic plans in writing aids top managers in clarifying their goals and plans and increases the probability that these plans will be achieved (Fellner & Sulzer-Azaroff, 1986). Communication or deployment of the strategic plans to all members of the organization in its entirety or some form of it will aid all members of the organization in aligning their goals with the company's strategic plans (Farace, Monge & Rusell, 1977; Malott & Garcia, 1987). Finally, defining and documenting a strategic plan is important because the organization can set the stage for individual participation in helping achieve these goals. As a result, a highly synergistic effect can be created in an organization.

Once the strategic plans are documented, a strategy implementation plan can be employed. Hrebinjak and Joyce (1984) proposed an exemplar model for strategy implementation. It consists of six key components that are logically sequenced and interlocked. These six elements include: strategy (Bartlett's model can be employed here), primary structure and systems,
operating level objectives, operating structure and systems, measures, controls and incentives and a change management component.

The Hrebiniak and Joyce (1984) model is useful in showing organizational members the "sequence" in which strategic plans must be implemented. It also helps the employees understand and appreciate their respective share of responsibilities and benefits in the overall process of implementation and see why and how the process works.

The Hrebiniak and Joyce (1984) strategy implementation model is primarily a top-down, sequential approach; however, once the key variables are laid out, then the change process can be carried out concurrently with different variables as long as one anticipates the effects that will be created and adapts the other variables to meet the new situation. Hrebiniak and Joyce (1984) state "the design or style of the implementation program will be determined by decisions concerning the context and timing of change activities" (p. 219). Accordingly, implementation may need to be fast or slow, large or small.

Above all, it is important to note that the primary method for keeping the strategy implementation process aligned and interlocked is dependent upon the measures, controls and incentive systems. Hrebiniak and Joyce (1984) note "thus, the incentive plan must reinforce the structure and related management processes. Thorndike's 'law of effect' definitely is most salient here: behavior that is reinforced tends to be repeated" (p. 15).

Theoretical and technological publications in the area of business information systems are increasing at a rapid rate. However, it is Athappilly's (1986) model for effective organizational computer-based information systems which stands out as a complete yet simplified design and implementation model. Athappilly's model is designed from the top of the organization down,
but built from the bottom of the organization up.

The lowest level is called the electronic data processing (EDP) level. This is where transactional processing takes place. Transactional processing includes sales order entry, manufacturing order entry, purchasing, inventory, labor reporting, payroll, etc. Most organizations' focus here is to have a system to aid in information flow to service a high volume of customers efficiently and to have the necessary financial, community and government record keeping and reporting systems available. Establishing a sound EDP system requires strict business policies and procedures, training, clear job responsibilities and frequent information audits (Kyd, 1988). It is extremely important to establish a sound EDP as all systems levels above it are affected by the accuracy, timeliness, and completeness of the data being entered into this system.

The systems levels above EDP sequentially include operational control, managerial control, and strategic planning. These systems levels above EDP are all considered decision support systems (DSS). The EDP system and the DSS combined are considered management information systems (MIS).

Success of the comprehensive organizational information systems depends on a carefully monitored evaluation system. Athappilly (1985, 1986) expounded a comprehensive evaluation model for organizational information system. The model consists of two parts: a theoretical framework (Athappilly, 1985) and a practical methodology (Athappilly, 1986). The theoretical framework emphasizes a dynamic methodology for all phases of the system development life cycle. Figure 1 depicts the system. The practical methodology emphasizes a five-step procedure for implementation taking into account the importance of incorporating the views of the users as well as the technical experts.
Understanding Athappilly's business information systems model is important for rapidly changing small businesses for a number of reasons. In today's competitive environment, businesses must be continuously improving their information systems by adopting new technologies and methodologies and by updating system architecture, hardware, software, policies and procedures, training, networking and personnel management policies. A strategic plan for information systems in support of the organization's strategic plan is necessary in order to ensure that the systems improvements are designed and implemented in a logically-sequenced manner. Similarly, customers expect to be able to link directly into an organization's computer-based information system to issue paperless purchase orders, communicate,

Figure 1. Athappilly's Dynamic DSS Evaluation Model.

check schedules and inventory and work jointly on graphic engineering-based data.

In summary, business management and business information systems exemplar models offer key business planning directions and implementation strategies to aid small businesses in adapting and changing rapidly to the environment. Once the business planning process has taken place, then behavioral systems analysts and behavior analysts can design, implement, maintain, evaluate and improve human performance management systems in a Win-Win-Win manner taking into account the present and future needs of the customers, the organization, the employees, the suppliers and the surrounding communities (Rausch, 1985; Schaeff & Fassel, 1988).

Behavioral Systems Analysis and Behavior Analysis Theories and Techniques

Behavioral systems analysis is ... the analysis of behavioral systems, the design, evaluation, and modification of systems to help them accomplish their objectives, an attempt to find ultimate objectives of the unorganized "organization" and then to help it get organized, to function as a smooth system with all components working toward the same set of ultimate objectives. Behavior analysis tends to concentrate on three major conditions that influence or control behavior: (a) the motivation of the individual, (b) the cues of the immediate environment, and (c) the results of the behavior (Malott & Garcia, 1987; p. 134).

A combination of these areas of analysis can be employed for designing total organization performance management systems along with ad hoc problem solving team performance management systems.

Brethower's (1972) total performance systems model serves as a historically established model for conducting behavioral systems analyses to determine how a system currently functions and also for defining how a system is desired to function in order to most effectively meet the needs of the
receiving system or customer. Brethower defines a total performance system as "an adaptive system comprised of a set of components which, when operational, are sufficient to improve or maintain the performance of the system" (p. 14). The total performance system is comprised of seven key variables which include: a mission statement for the system, input, a processing system, output, a receiving system, processing system feedback and receiving system feedback. Figure 2 is a depiction of a total performance system and its component parts. It is worth noting in this context that Athappilly's notion of the comprehensive information systems evaluation model may be employed once Brethower's processing system and receiving system feedback variables have been identified and defined. It is the computer-based information systems strategies which allow an organization to more effectively and efficiently collect, manipulate, track and display data and information so that timely, accurate and cost effective decisions may be made by managers and employees

![Figure 2. Brethower's (1972) Total Performance System.](source: Brethower, D. M. (1972). A total performance system. Kalamazoo, MI: Behaviordelia, p. 7.)
throughout the organization.

A total performance system is a throughput system in which input in the form of people, data or things are received by the processing system (Fine & Wiley, 1971). Input could also be classified in terms of machinery, manpower, money, methods and materials (Gilbert, 1978; Scherkenbach, 1990). Value is added to the materials by applying labor and technology. Output is provided to the receiving system in the form of products and services, reports, waste products, etc. The primary receiving system is the customer. Other receiving systems include the government, suppliers, financial institutions, the community, etc.

Less effective total performance systems may lack a clear mission statement and effective processing and receiving system feedback loops. These components are not considered as a given in most systems; however, performance managers who desire effective systems are continuously working at defining clearer goals and sub-goals with standards for accomplishments along with frequent and specific feedback systems in which actual performance is charted in relationship with preset goals for easy problem detection (Brethower & Wittkopp, 1987; Brinkerhoff & Dressler, 1990; Christian, 1984; Rummler & Brache, 1990).

A total performance systems analysis may be conducted at the total organizational level first and then may be conducted again for each functional unit of the organization and at each level of the organization. This analysis may also be conducted based on an individual's performance and based on an ad hoc team's performance. For individuals, the processing system would be their own work activities and the processing system feedback may be in the form of self-talk and/or their score on a behavior checklist (e.g., percent of key
behaviors performed today). Their output would be whether or not they met their job mission statement within the defined period and their receiving system would be their coach or manager and the internal receiver of their products and services. For a team, the processing system would involve a problem solving process employed along with individual checklists or job aids. The receiving system would be the organization via which the group was established. The processing system feedback would be behavioral checklists and problem solving activities completed. The receiving system feedback would be in the form of proposal approvals (Brethower, 1983) and data on results.

For a behavioral systems analyst "the greatest opportunities for performance improvement often lie in the functional interfaces. Those are the points at which the baton (for example, 'production specs') is being passed from one department to another" (Rummler & Brache, 1990; p. 9). Often, information is lost during this exchange between the interfaces. In order to address this problem, Rummler and Brache's "process mapping technique" can be employed. This is a process whereby, for example, all the steps necessary to receive and process a customer order or to hire an applicant, etc. are defined and laid out in a sequential manner and the person or position responsible for each step is identified. This is done in a matrix format. Then standards of performance are defined for each step in terms of time to complete the task; quality requirements are defined; and costs are budgeted. As a result of this process, companies such as Motorola have been able to significantly reduce cycle time, and reduce errors and costs (Kumar & Gupta, 1991). The net result is improved customer satisfaction.

Gilbert (1978) has employed behavior analysis theories and techniques
to develop an important model for analyzing and improving individual performance management systems. His model is called a job model. A job model includes a job mission statement which is a key accomplishment needed by the organization to meet its customers' or internal customers' needs. Standards of performance are established based on the accomplishments of an exemplar performer. This is the same method of establishing performance standards as that employed by Frederick W. Taylor who has been generally known as the father of modern time study in this country (Niebel, 1988).

Gilbert suggests that standards for the accomplishment\(^1\) need to be set in terms of a quality measure, quantity, timeliness, and cost measure. Once the overall accomplishment and standards are set, then sub-accomplishments can be defined in terms of reporting outputs, people relationship maintenance, professional goal achievement, and strategic idea implementations (Brethower, 1982, 1990; Fine & Wiley, 1971).

Odiomne (1984) suggests that the job mission statement could be broken down into three sub-categories based on present performance levels. He suggests that these should be routine, problem-solving and innovative goals relative to the job mission statement. Therefore, if the individual performer performs above expected levels, then he or she could be working on an innovative or strategic idea that relates to his or her job mission statement. For example, if this person was responsible for obtaining a certain revenue amount, and did so, then this person may wish to work on a new sales video to aid in obtaining future revenues through better sales technology. If the

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\(^1\) In this dissertation, the word "accomplishment" means a worthy performance result obtained by an individual, unit, team or organization. The word "performance" means behaviors exhibited which may contribute toward the obtainment of the accomplishment. (Gilbert, 1978)
performer was performing below expected levels, then the performer would be required to perform problem solving activities to determine why he or she was not receiving the desired results and then determine a plan of action to improve performance. The routine goals would be defined as the key sub-accomplishments that would need to be achieved to obtain the overall result. These sub-accomplishments would be defined based on studying past exemplar performers and reviewing the literature (Mirman, 1982).

Bacon, Fulton and Malott (1983) further advanced the idea of defining the key sub-accomplishments of an exemplar performer. They added the idea of a daily self-monitoring checklist made up of these key sub-accomplishments. They also added periodic supervisor review sessions (Odiome, 1979). They employed this system with their administrative staff in an instructional system and found the percentage of task completion was improved by 28.8%.

Bacon, Fulton and Malott's results are supported by Biteler (1991), who employed self-recording checklists to improve the percentage of printed circuit board assembly (P.C.B.A.) designs without input shortages when they reach the release stage on the timeline. At baseline, 20% of the boards were accepted without input shortages. After implementing checklists and feedback, on the first submission, performance improved to 70% acceptable. Within seven weeks, the goal of 100% acceptable was obtained.

Gilbert's (1978) job model design and the aforementioned supporting theories and techniques employed together aid in the effective design of individual performance management systems. These systems include goal-setting, establishing job models or job structure, implementing measurements, tracking and graphic feedback systems along with supervisory feedback and consequences for performance accomplishment.
Garcia, Malott and Brethower (1988) combined behavioral systems analysis and behavior analysis in developing a highly effective research supervisory system which can be effectively applied in an organizational setting. Their system included goal-setting, task specification, self-monitoring, weekly meetings, feedback and incentives. This system was employed with 29 psychology graduate students working on theses and dissertations. They found that students in the supervisory system had completed 30% more research projects than the college-wide control group had completed during the same period of time. In addition, they found that the students in the supervisory system completed their degree programs within a shorter time period than the college-wide control group (one month less for master's level students and 17 months less for doctoral students; p. 190).

In addition to the student performance management system, the research supervisory system itself was managed by implementing performance management and total performance systems strategies. The goals of the organization were aligned hierarchically and cross-functionally. Supervisors had specific accomplishments they were required to obtain. Also, the system coordinator and her staff had specific goals. These staff members received frequent feedback based on their performance. The research supervisory system was designed in a Win-Win manner; the students completed their projects and the system was successful in turning out a higher volume of quality theses and dissertations when compared with the output of the college as a whole. Earlier versions of the research supervisory system also were presented (Dillon, Kent & Malott, 1980; Dillon & Malott, 1981; Grant, Dillon & Malott, 1980).

Brethower (1983) also combined behavior analysis and behavioral
systems analysis in developing an effective and efficient ad hoc, small productive work group performance management system (i.e., six to eight group members). The first component of his system requires the understanding of Hackman and Oldham's (1980) definition of a productive work group as a guide for group processing. This definition includes three elements:

1. The productive output of the work group meets or exceeds organizational standards of quantity and quality.
2. The group experience serves more to satisfy than frustrate the personal needs of group members.
3. The social process used in carrying out the work maintains or enhances the capability of members to work together on subsequent team tasks (pp. 168-169).

The second component is the achievement of a statement of the overall problem or goal the group is to work on. The third is the definition of the job models for the group as a whole and for each specific role in the group (i.e., meeting leader, problem recorder, facilitator, board recorder and participant) (Malott & Fulton, 1982). The fourth is the definition of a work flow process for effective group functioning with sub-process checkpoints and feedback loops. The fifth is the development of job-aids or self-monitoring checklists to aid group members in carrying out their role effectively. The sixth is the establishment of a positive reward system for effective group and individual performance accomplishments and behaviors that lead toward goal achievement (Malott & Garcia, 1987). The seventh is the initial and periodic group and individual training session regarding how to effectively carry out the group and individual job processes.

Brethower's group processing system is a highly effective model when all components are in place with an ad hoc group. Systems like this can lead
groups in becoming effective and efficient at a faster rate relative to a situation where no system was employed (Allen, 1989; Buchholz & Roth, 1987; Galagan, 1986; Hackman, 1990; Petrock, 1986; Scholtes, 1988; Varney, 1989). It can be employed with ad hoc teams at any level of an organization and within and across functional areas (Kumar & Gupta, 1991). It can be employed to address nearly any type of organizational or unit data-based performance problem or opportunity (Rigg, 1991). There is a high probability that the process will be carried out in a constructive interpersonal manner. Team members will learn more about the organization as a whole and managers will learn more about their systems gaps. Also, there is a high likelihood that the solutions implemented will be maintained due to the "buy in" obtained through participative management strategies (Petrock, 1986).

In summary, behavior systems analysis and behavior analysis theories and techniques may be highly effective in aiding small businesses in managing the change process. Business strategies and plans can be effectively implemented, maintained and improved by sound human performance management system designs and maintenance strategies based on the theories and principles of behavior analysis and behavioral systems analysis. Business information systems theories and techniques may be employed to aid in making the performance measurement and feedback system more effective and efficient.

The next logical step in the organization change process is to implement total quality management theories and techniques to establish organizational quality and process control mechanisms (Goldratt, 1990). Last of all, total quality management and S.P.C. theories and technique can be most effective when built based upon these aforementioned theories and techniques.
In general, total quality management and statistical process control theories and techniques aid small businesses in improving their overall effectiveness through participative, data-based, problem management systems that are focused on measuring and improving quality processes and output throughout the organization (Shores, 1990). All employees in the organization must know what their internal and external customers' quality requirements are and how they are performing in relationship to them in order for the organization to achieve total quality standards (American Management Association, 1991). Also, all employees must be able to systematically solve their own processing problems in order to increase the probability of quality output at a cost the organization can afford (Walton, 1990).

Sink (1991) defined the exemplar total quality management system. It is a systems analysis model in which quality requirements are defined and actual performances are measured at five key checkpoints in an organizational system. These checkpoints include: "selection and management of providers (i.e., suppliers, employees, etc.), incoming quality assurance for all inputs, in-process quality assurance, and reactive and pro-active assurance that you are meeting and/or exceeding the customers' needs, wants, expectations, desires, demands, requirements/specifications" (p. 25). Sink notes, "if you manage and measure performance at each of the five checkpoints, you will be managing quality totally" (p. 26).

Sink's model is similar to Brethower's total performance systems model in that it employs a systems analysis perspective. Key systems components are
defined, goals are set and measurements and feedback systems are installed for
the entire system.

Their models are different in that Sink's model focuses on quality goals
and measures, while Brethower's focuses on all measurement parameters of a
system component including quantity, quality, timeliness, cost and class. Their
key systems components differ as well; however, combining these two models
could prove to be very powerful and effective in meeting the changing needs of
small businesses today.

S.P.C. theories and techniques applied with manufacturing processes
have been in existence since about 1924 (Shewhart, 1939); however, it is the
application of S.P.C. with all jobs in an organization (Brethower & Wittkopp,
1987; Gill, 1990) which could aid small business in "being the best they can
be." S.P.C. is primarily the recording of sample output data on common
control charts in which normal and non-normal process variation can be
detected early in a process by the performers themselves (Redmon &
Dickinson, 1987). Once unwanted variability is detected, the performers
would employ systematic problem solving models such as a pareto diagram or
a fishbone analysis in order to define causes of the variability (Amsden, Butler
& Amsden, 1989) and then implement solutions.

Brethower and Wittkopp (1987) present the notion that employing
S.P.C. theories and techniques with all job types and processes throughout the
organization would be a good idea to improve overall organizational
effectiveness. They noted that S.P.C. could be employed to control team or
group performance along with unit and/or organization performance. Their
notion included the idea of assigning individuals the responsibility for ensuring
that their performance trends were appropriate as opposed to assigning them
the responsibility for meeting an exact performance target on a single instance. This idea creates a fairness in the management of an individual's performance.

If an individual's or a team's performance were found to be trending out of control, it would be their responsibility to conduct systematic problem solving to bring it back in control. This problem solving process would include an analysis of the external variables and the activities themselves which affect process variation. Gilbert's (1978) behavior engineering model along with Mirman's (1982) post-call learning cycle technique would be useful methods for clearly defining these human processing systems along with employing them as performance trouble-shooting systems. Gilbert's behavioral engineering model includes identifying environmental and individual repertoire variables which one needs to consider when designing effective human performance management systems. Mirman's post-call learning cycle is employed to analyze exemplar performers and sequentially document the key tasks they carry out which lead them to successful results.

Employing S.P.C. theories and techniques with organizational, team and individual performance management systems is the next logical step once behavioral systems analysts have defined effective behavioral processing systems and accomplishment goals that are throughput and hierarchically aligned and interconnected. Establishing ranges in human performance processing systems provide performers with a normal processing range they can feel comfortable operating within. It also provides them with an early signalling device to warn them when their process performance is trending out of control and indicates that they need to go into a problem solving mode.

In summary, total quality management and statistical process control theories and techniques provide small businesses today with a focus on quality
that was lost during the 50s and 60s when business and the economy were
good following World War II (Amsden, Butler & Amsden, 1989). Total quality
management provides a total organizational focus on quality goals, measures
and continuous process improvement. Brethower and Wittkop's (1987)
innovative idea of employing S.P.C. with human and organizational
performance processing systems extends the use of S.P.C. from being employed
with manufacturing processes to being employed with organizational, unit,
team, and individual performance processing systems. This renewed interest in
quality goals and processes should aid small businesses (Gill, 1990; Overman,
1991; White, 1991) in being "the best they can be" and "world-wide
competitors." Improving the competitiveness of small businesses is important
in maintaining the United States' standard of living and the well being of its
citizens (Kopelman, 1986; Weitzman, 1984) in addition to maintaining a
healthy balance in the world's societal order (Gross, 1980; Naisbitt &

Summary

The research and the business communities would benefit from a study
in which a fully-integrated organizational change model is employed to bring
about effective and efficient total organizational change using a value-added
approach versus a cost-cutting method in a two-phase sequence. The first
phase would be a top-down approach of implementing business management,
business information systems, behavioral systems, analysis, behavior analysis,
total quality management and statistical process control with the total
organizational structure. The exemplar models from each of these discipline
areas serve as the guide for design and implementation. These models include Bartlett's (1988) strategic planning model, the Hrebiniak and Joyce (1984) strategy implementation model; Athappilly's (1985) business information systems model, Brethower's (1972) total performance system, Gilbert's (1978) job model, Brethower's (1983) small productive work group system, Sink's (1991) total quality management and the Brethower and Wittkopp (1987) organizational and human performance systems use of statistical process control. The design process is carried out primarily sequentially; however, the implementation process begins sequentially and then becomes a coordinated and concurrent effort (Hrebiniak & Joyce, 1984). The performance management strategy will be employed in a repeating categorical format for systematic interventions at each layer of the organization and with each performance system. A performance management strategy includes goal-setting, structure and systems definition, measures and feedback systems, and a reward system component. The second phase would be the process of implementing the very same theories and technologies by performance management technologies with ad hoc teams that are established to improve the total organization's performance in some specific problem area.

The present research differs from past theoretical and technological solutions in a number of ways. First, it integrates a package of theories and technologies from various discipline areas as opposed to focusing on one. Second, the integration is aimed at maintaining or improving total organizational effectiveness on both a short- and long-term basis by value-added versus cost-cutting strategies whereas past solutions may have been employed to improve only parts of a total organization and a positive strategy may or may not have been employed. Third, the integration is implemented
with a small business over a six-year period of time under realistic conditions. Both systems analysis and case study analyses will be presented after the model established by Christian (1984).

The aforesaid component theories and technologies from the domains of business management, business information systems, behavior systems analysis, behavior analysis, total quality managements and statistical process control have been analyzed and, in some case studies, have been found effective. In the proposed study, these theories and technologies will be implemented in an "integrated package approach" to demonstrate that it can be employed in a "real" organization to bring about positive and lasting organizational change in an effective and efficient manner. The variables to be studied will include the effect of this intervention package on the total organization's strategic goals accomplishments, operational goals accomplishment and total customer satisfaction. Also studied will be the effects of the change process on the performances of sub-units, individuals, and ad hoc problem solving teams that are sub-systems of the total organization.
CHAPTER II

METHOD

Setting

The study was conducted at a small, privately owned and managed, service company. The XYZ Company (a fictitious name) is located in Michigan and employs approximately 120 full time employees and 25 part time employees. Over the past 25 years, the XYZ Company has been an industry leader in the application of new technologies in providing engineering-based services to Fortune 100 and Fortune 500 clients throughout the world. The XYZ Company President served as the "guardian" for the organization throughout the study and was responsible for reviewing and approving all intervention strategies in advance.

The XYZ Company was selected as the main subject for this study for a number of reasons. First, the XYZ Company was known to be a leader in the implementation of new technologies and new ideas. Second, because of the XYZ Company's desire to be a leader in its industry, the employees in the organization were highly skilled and familiar with constant change, innovation and ongoing improvement. Third, the author became employed with the company in 1985 with the purpose of implementing innovative human resource systems with an emphasis in establishing employee problem solving teams and participative management practices. The author and the President agreed that the implementation process should be conducted by using a data-
based strategy whenever possible.

There are two key services which this company provides. One is an engineering service for new product development. Approximately 40% of the company's revenue is generated by this service unit. The second service is a pre-production and early market introduction support services unit. This unit makes up the remaining 60% of the company's revenue. In order for these two units to effectively meet their goals, there is also a support services unit which includes customer services, accounting, human resources, organizational information systems, quality performance management and maintenance.

The XYZ Company's customer base relies heavily upon its implementing new management information and technology-based innovations in order to continue to be "compatible" and progress together. For example, electronic data interchange was implemented in 1989 to allow customers to send purchase orders from computer-to-computer in order to reduce cycle time, errors and paperwork. A three dimensional data-base transfers system was implemented in the Engineering service areas along with the ability to send data through I.G.E.S. (International Graphic Exchange Standards) transfers. Just-in-time and statistical process control capabilities became a recognized need in the late 1980s and were implemented. Most importantly, customer timeliness, quality, cost reductions and service needs increased dramatically, and systems were established and implemented to meet these new needs.

In addition to the aforesaid requirements by their customers, the XYZ Company received new requirements from other external bodies. Governmental changes came about in the areas of safety and security, environmental protection, tax, insurance and labor laws. Financial institutions' requirements were tightened as a result of recessionary trends due to increased foreign
competition, crises in the Middle East, problems in the savings and loan industry, and junk bond failures.

The organization adapted to these new needs and expectations by including them in the company's strategic directions. In order to meet these challenges, the company needed to undergo effective and efficient change throughout all areas of the company and across all levels. A formal strategic plan was written and communicated. A new simple, yet effective, organizational structure was adopted. Human resource development and information systems development needs were systematically addressed. New customer service systems were devised. Everyone in the organization became empowered to innovate new ideas and solve problems. In order to maintain these changes, performance management technology was employed.

Subjects

The XYZ Company served as the main subject of this study and sub-units or teams, individuals and ad hoc problem solving teams within the company also served as subjects. Overall, there were seven targets which are listed below:

1. The organization as a whole
2. The Engineering service unit: Sub-unit A
3. The Pre-production service unit: Sub-unit B
4. An individual performer: The Cafeteria Supervisor
5. Ad hoc team 1: The sick pay team
6. Ad hoc team 2: The performance review system team
7. Ad hoc team 3: The manufacturing information system team
Intervention

The organizational change process began in 1985 with small successes. The first implementation of an individual performance management system began with the company's cafeteria supervisor. Her overall job responsibility was defined in terms of outputs. A behavioral checklist was developed, and weekly goal-setting and accomplishment review meetings were held between the author and the Cafeteria Supervisor. The author also established a performance management and reporting system for herself in which weekly-goal setting, problem solving and reporting were provided to the President based on her performance. The President found these systems to be a highly effective aid for him in reviewing performance quickly and providing feedback.

The following year, the author, the President and an outside consultant worked together to establish an off-site "team building" session for the management team and six employees selected from different functional areas of the company. Following the team building session, several management teams met on a weekly basis to strategize and implement necessary changes. Also, ad hoc problem solving teams were established to work on defined organizational problems.

An annotated and chronological list of the key organizational and human performance change events is presented in Table 2. Listed first are items implemented with the total organization and in the support services unit. Listed second are items implemented in the Engineering sub-unit only, and listed third are items implemented in the Pre-production sub-unit only. These change events are based upon behavioral systems analysis, business management and statistical process control theories and techniques found in

Table 2
An Annotated and Chronological List of Key Organizational Interventions by Functional Unit, 1985-June, 1991

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1985</td>
<td>1. 1st Performance Management System Set In Place With The Company Cafeteria Supervisor. For an individual performer, a job model was developed in which the job mission was defined, the people, data, things results were defined. A self-management behavioral checklist was installed, and a weekly goal-setting plus feedback system was started. Quantity and quality of performance improved and performer satisfaction increased. (Support Services Unit)</td>
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<td>1985</td>
<td>2. 1st Management Reporting System Initiated. The President/CEO received a weekly report from the author (Personnel Manager). Key results areas were systematically reported on, noting the past week's results and upcoming week's goals. (Support Services Unit)</td>
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<td>1986</td>
<td>3. Organizational Team-Building Session Held. A two-day team-building session was held with 20 people managers and six staff and production employees. Team building exercises were conducted relative to organizational success factors and the idea of continuous improvements through the organizational change process. (Total organizational intervention)</td>
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<td>1986</td>
<td>4. Core Management Team Meetings Held. Each week, the Top-Level managers met with the owner/CEO to share progress toward organizational and unit goals</td>
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<th>Year</th>
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<tr>
<td>1986</td>
<td>and also, to discuss interface needs. (Total Organizational intervention, Top management)</td>
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| 1986 | 5. **1st People Management "Coaches" Session Held**  
Each month, the people managers attended a session on (1) Organizational philosophies, structure, processing, past and future performance; (2) people management training; and (3) team exercises. (All people managers in the organization--Total organizational intervention) |
| 1986 | 6. **1st Ad hoc Problem Solving Team Held**  
A six person team of people and project managers worked on a problem to provide adequate income security protection, reduce absenteeism, and control costs associated with the sick pay benefit. This group received 100% approval on their proposal which turned the existing sick pay policy into a **Well Pay Policy**. (Total organizational intervention) |
| 1986 | 7. **2nd Ad hoc Problem Solving Team Held**  
A six person team worked on the problem of changing the old attribute and behavioral-based, non-systematic performance review system into a **Results-based Total Performance Review System**. This group received approval on their new quarterly results-based performance review system, quarterly compensation review system and quarterly organizational performance meeting for employees. (Total organizational intervention) |
| 1986 | 8. **MBO System Initiated for Top Managers**  
Job missions, and key supporting results were defined for each key manager. A self-recording checklist was established and a weekly reporting system was set in place. The owner and the key manager met weekly to discuss the past week's accomplishments and future week's goals. (Total organizational intervention, Top two Levels of Management) |
| 1987 | 9. **Quality Philosophies and Systems Instituted**  
The quality department was formally established and set up |
Table 2--Continued

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<td>1987</td>
<td>10. <strong>The Total Performance Systems Model Was Employed</strong>&lt;br&gt;The top two levels of managers utilized this model to conduct a top-down and throughput-based organizational analysis for the total organization, each sub-unit in the company, and for the managers. (Top level managers across the company)</td>
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<td>1988</td>
<td>11. <strong>An Organizational Analysis Was Conducted</strong>&lt;br&gt;This analysis looked at past, present and future total organizational performance issues. Also, the analysis suggested three immediate strategy needs: (1) define clear goals; (2) establish an effective, yet flexible organizational structure; and (3) develop an effective score keeping system. This analysis was conducted by a Behavioral Systems Analysis-based Industrial Organizational Consultant by interviewing the top two levels of management across the organization.</td>
</tr>
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<td>1988</td>
<td>12. <strong>The Strategic Plan Was Documented</strong>&lt;br&gt;Based on Bartlett (1988) and Hrebiniak and Joyce's (1984) strategic planning and strategic implementation models, a strategic plan was written and communicated by the President. This plan included: (a) a clear mission statement; (b) philosophies, culture, and strategic goals with time lines defined; (c) market niche specified; (d) internal strengths and development areas noted; (e) external opportunities and threats were noted; (f) organizational units and structures defined and depicted; and (g) clear goals and methods of measurements were defined.</td>
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<td>1988</td>
<td>13. <strong>Behavioral Systems Analysis-Based Training Programs Were Developed and Implemented For All Job Functions</strong>&lt;br&gt;These programs were designed with (1) course objectives; (2) course syllabus; (3) calendars for units of study and evaluation; (4) workbooks with objectives, topic content materials; (5) trainee performance tracking and feedback systems. (Total organizational intervention)</td>
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| 1988 | 14. **A Human Resource Strategic Plan Was Developed**  
      This plan was aligned with the organizational strategic plan. (Total organizational intervention) |
| 1988 | 15. **3rd Ad hoc Problem Solving Team Established**  
      This team was established to analyze informal information throughput systems. This was done to ensure that the required information needs were being met and that information was passed effectively and efficiently to each point of the system. It was also established to re-clarify the goals of the Engineering and Pre-production sub-units, and how these two units interfaced. (Total organizational intervention) |
| 1988 | 16. **4th Ad Hoc Problem Solving Team Established**  
      This team was employed to analyze the centralized computer-based business information system and to identify the needs of users and to implement new and needed components of the system. This group was not successful due to not being held accountable for following the Ad hoc Team process system. (Total organizational intervention) |
      (1) A comprehensive marketing/sales/customer service strategic plan was written and supported the organizational strategic plan; (2) A responsibility matrix and functional throughput map were defined for the entire sales order and manufacturing process; (3) Goals and measurement systems were installed to monitor performance output in terms of time, quality, cost and service; (4) The data were graphed in cumulative format in relationship to pre-set goals and is updated daily or weekly and posted. |
| 1988 | 18. **Comprehensive Electronic Office Installed**  
      Over 40 terminals were installed to reduce the cycle time of the communication process and to centralize information. (Total organizational intervention) |
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<tr>
<td>1989</td>
<td><strong>19. 100% of the Employee Population Trained in SPC Theories and Techniques</strong>&lt;br&gt;Managers attended 34 hours of training and employees attended 18 hours of training. Basic math and reading sessions were designed and implemented for those employees who needed remedial training before the SPC training. New personnel hiring procedures were also implemented which focused around basic math, reading and problem solving.</td>
</tr>
<tr>
<td>1989</td>
<td><strong>20. Organizational Performance Measurement Systems Needs Defined and Strategy to Build Them Developed</strong>&lt;br&gt;A comprehensive computer/information systems strategic plan was written which supported the overall strategic plan. This plan was written utilizing a top-down analysis approach. The plan included levels of information systems from data-based management to artificial intelligence. (Total organizational intervention)</td>
</tr>
<tr>
<td>1989</td>
<td><strong>21. Aligned Job Missions Defined for 100% of the People Managers and Communicated</strong>&lt;br&gt;Economic output-based goals with sub-measures of time, quality, quantity, cost and class measures which support the strategic plan and which were aligned and interlocking in the organizational structure were defined, documented and presented to all people managers for the company.</td>
</tr>
<tr>
<td>1989</td>
<td><strong>22. 6th Ad hoc Team Problem Solving Session Held</strong>&lt;br&gt;This team worked on improving safety at the XYZ Company. They focused on &quot;Awareness&quot; as an area they felt could be improved. They put up posters, recorded the number of days without a lost time accident and evaluated whether or not safety awareness improved (i.e., did employees notice the new information?) (Total organizational intervention)</td>
</tr>
<tr>
<td>1989</td>
<td><strong>23. Quarterly Performance Goal-Setting Plus Review System Was Set In Place With All People Managers Based On Their Job Models</strong>&lt;br&gt;(Total organizational intervention)</td>
</tr>
</tbody>
</table>
Table 2--Continued

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>24. <a href="#">Advisory Board Established Made Up of University Professors</a></td>
</tr>
<tr>
<td></td>
<td>This board was established to provide input to the CEO on future</td>
</tr>
<tr>
<td></td>
<td>directions.</td>
</tr>
<tr>
<td>1990</td>
<td>25. <a href="#">Environmental Audit For The Company Was Outstanding</a></td>
</tr>
<tr>
<td></td>
<td>The organization hired an outside consulting firm to conduct</td>
</tr>
<tr>
<td></td>
<td>an independent environmental audit.</td>
</tr>
<tr>
<td>1990</td>
<td>26. <a href="#">8th Ad hoc Problem Management Team Established</a></td>
</tr>
<tr>
<td></td>
<td>This group was established to determine whether or not the</td>
</tr>
<tr>
<td></td>
<td>company should offer a new optional life insurance package</td>
</tr>
<tr>
<td></td>
<td>to the employee population and, if so, how. (Total organizational)</td>
</tr>
<tr>
<td>1990</td>
<td>27. [401K Profit Sharing Plan Updated With An Employer Match And An</td>
</tr>
<tr>
<td></td>
<td>Employee Funds Selection Option](#)</td>
</tr>
<tr>
<td></td>
<td>The company implemented a 25 cent on the dollar match for payroll</td>
</tr>
<tr>
<td></td>
<td>deduction contributions up to a maximum limit. Also, the employees</td>
</tr>
<tr>
<td></td>
<td>were offered four types of funds they could invest their monies in.</td>
</tr>
<tr>
<td>1990</td>
<td>28. <a href="#">The Company Selected a New Financing Plan</a></td>
</tr>
<tr>
<td></td>
<td>The company moved to a new financing institution and an asset based</td>
</tr>
<tr>
<td></td>
<td>financing plan. Daily measurement and reporting systems of assets</td>
</tr>
<tr>
<td></td>
<td>were established for better controls and quicker reaction to trends.</td>
</tr>
<tr>
<td>1990</td>
<td>29. [100% Of All Support Personnel Were Trained In Data-Based Problem</td>
</tr>
<tr>
<td></td>
<td>Solving Strategies](#)</td>
</tr>
<tr>
<td></td>
<td>Support personnel were asked to employ systematic problem solving</td>
</tr>
<tr>
<td></td>
<td>strategies to bring about change to meet current and future</td>
</tr>
<tr>
<td></td>
<td>organizational and individual performance results. (Total</td>
</tr>
<tr>
<td></td>
<td>organizational)</td>
</tr>
<tr>
<td>1991</td>
<td>30. [Job Missions Defined and Communicated for 100% of the Employee</td>
</tr>
<tr>
<td></td>
<td>Population](#)</td>
</tr>
<tr>
<td></td>
<td>Aligned and interlocking performance output goals were de-</td>
</tr>
</tbody>
</table>

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fined and communicated to all employees. Also, a goal-setting plus feedback quarterly review system based on the achievement of the job mission and supporting data needs, people relationship needs, strategic idea implementation goals and professional development goals were presented to all employees as the new performance review strategy to be employed for the next quarters review. Also, a summary strategic plan was provided to 100% of the employee population.

These checklists were developed based on input from exemplar performers, research and the employees themselves. These are continuously under further development. This system also serves as their own personnel performance problem solving and trouble-shooting tool.

1991 32. Total Quality Systems Analysis Conducted
The current quality systems were evaluated. The following critical areas were analyzed: (a) the need for better definition of customer requirements at the start of the process, (b) the possibility of better process control through the application of SPC theories and technologies to the total organizational and manufacturing systems, (c) the need for better auditing and measurement of quality processes and output, and (d) the feasibility of employing a Warranty Specialist to ensure customers' total time, quality, cost and service needs are met each order.

1991 33. Performance Measurement Systems are Rapidly being Installed throughout the Entire Organization
These measurement systems are being installed so that the organization may move forward together and so that fair and equitable pay-for-performance systems can be earned and installed in the rest of the organization.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>1. <strong>Performance Management Technology Was Introduced To The Engineering Services Sub-Unit</strong>&lt;br&gt;Aligned job mission statements for people managers were shared. Scheduling systems were beginning to be developed. Labor and materials tracking data systems were enhanced.</td>
</tr>
<tr>
<td>1989</td>
<td>2. <strong>New Work Stations and CAD/CAM Software Were Purchased and Installed Along With Direct Numerical Control Systems Being Established</strong>&lt;br&gt;The entire CAD/CAM Project Leadership hardware and software systems were updated to state-of-the-art technology.</td>
</tr>
<tr>
<td>1989</td>
<td>3. <strong>7th Ad Hoc Problem Solving Team Established</strong>&lt;br&gt;This group defined multiple problems that needed to be addressed which included: (a) Implement new hardware and software, (b) train on new software while still meeting the needs of customers, (c) maintenance of old hardware and software, (d) improve information flow in order to better communicate progress toward goals to the people manager and to other units of the company which provide updates to customers and who prepare for the next operation once this unit completes each part of their project.</td>
</tr>
<tr>
<td>1990</td>
<td>4. <strong>1st Daily Productivity Charted Graphically for This Sub-Unit</strong>&lt;br&gt;Based on economic output goals, period data were divided into 20 days with equal goals, then actual data were plotted in relationship to the preset goals.</td>
</tr>
<tr>
<td>1990</td>
<td>5. <strong>Project Management Training was Provided to All Project Leaders and People Managers</strong>&lt;br&gt;Two half day sessions on project management.</td>
</tr>
<tr>
<td>1990</td>
<td>6. <strong>Restructured the Engineering Services Sub-unit</strong>&lt;br&gt;Technical and managerial specialists were added to this unit to regain past competitiveness leadership and to ensure the</td>
</tr>
</tbody>
</table>
Table 2--Continued

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XYZ organization maintains industry leadership in its market niche in the future.</td>
</tr>
<tr>
<td>1990</td>
<td>7. <strong>9th Ad Hoc Problem Solving Team Established</strong>&lt;br&gt;This team was established to re-implement past successful CAD/CAM project leadership strategies and present new innovative ideas to complement these past successes.</td>
</tr>
</tbody>
</table>

**Pre-production Support Services Strategic and Operational Change Implementations**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>1. <strong>SPC Philosophies and Systems Implemented in the Pre-Production Sub-Unit</strong>&lt;br&gt;Employees were trained, data collection and problem solving began, ongoing development.</td>
</tr>
<tr>
<td>1988</td>
<td>2. <strong>Performance Management Systems Installed in the Pre-Production Sub-unit</strong>&lt;br&gt;Job models were developed, self-management checklists created, a schedule was set in place.</td>
</tr>
<tr>
<td>1989</td>
<td>3. <strong>Expert System-Based Quoting System Established for the Pre-production unit.</strong></td>
</tr>
<tr>
<td>1989</td>
<td>4. <strong>Performance Management Implementation Further Developed</strong>&lt;br&gt;(a) Utilization of capacity was measured and charted by shifts each day; (b) the process was changed to increase efficiency and effectiveness by the reduction in inventory, handling, and additional operating costs and these data were charted; (c) the scheduling system was enhanced by establishing priorities to meet due dates and volume requirements; (d) numerous new goals, measurement systems and philosophies established to support the organizational strategic plan and changes in the market place demands; (e) data inaccuracies were tracked and eliminated by implementing new policies, procedures and auditing systems; (f) job models and job aid checklists were generated for all positions.</td>
</tr>
</tbody>
</table>
### Table 2--Continued

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>5. <strong>4th Ad Hoc Problem Solving Team Established</strong>&lt;br&gt;This team's purpose was to ensure that a formal manufacturing methods information system was established so that operators were informed as to the customers' expectations. This group defined the necessary information needs, the process to start receiving them, and an auditing strategy.</td>
</tr>
<tr>
<td>1989</td>
<td>6. <strong>6th Ad hoc Problem Solving Team Established</strong>&lt;br&gt;This group was to focus on the 3rd shift's needs in order to improve productivity. The group presented training needs, and material handling needs but primarily it focused on an idea to generate a work cart which had all of the information (including the material needed) in a systematic place to decrease the time it takes to prepare to do a job.</td>
</tr>
<tr>
<td>1990</td>
<td>7. <strong>1st Daily Productivity Graph Charted For The Pre-Production Sub-Unit</strong>&lt;br&gt;Implementing these systems resulted in the need for better data accuracy, reliability and timeliness through new policies, procedures and auditing systems.</td>
</tr>
<tr>
<td>1990</td>
<td>8. <strong>100% Of The Secondary Operations Became Part Of The Press Cycle Time, and &quot;Secondary Work&quot; Department Was No Longer Needed</strong>&lt;br&gt;Over time, a two shift operation with approximately 30 employees became absorbed in the process ahead of it by setting standards and methods, effective scheduling and feedback systems.</td>
</tr>
<tr>
<td>1990</td>
<td>9. <strong>An In-house Temporary Pool Was Established For This Sub-Unit</strong>&lt;br&gt;In order to effectively manage peaks and valleys in the schedule, an in-house temporary pool was established to meet this need. This pool of personnel also served as an excellent pool of personnel from which to promote to full-time positions.</td>
</tr>
</tbody>
</table>
Table 2--Continued

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>10. A Computer-Based Information System was Established To Measure and Evaluate Two Levels Of Performance Output In Relationship To The Estimated Quote. This feedback allows the Director of the Pre-production sub-unit to refine the quoting process, analyze his unit's performance outputs better, and make changes when needed.</td>
</tr>
<tr>
<td>1990</td>
<td>11. Organizational Restructuring in the Pre-production Sub-unit. A full-time technical trainer was added, and a technical manager was added to support the performance systems manager.</td>
</tr>
<tr>
<td>1990</td>
<td>12. Raw Materials and Work-in-Process Procedures Established. The systems to control the materials were also set in place.</td>
</tr>
<tr>
<td>1991</td>
<td>13. A Sub-Unit-Based Pay-For-Performance System Was Set In Place With All Pre-Production Sub-Unit Personnel And All Key Support Personnel. This sub-unit received a 15.93% bonus to base pay as a result of the total organization meeting its goals the previous year and the Pre-production unit meeting its goals through improved performance and decreased costs. 57% of the organization's population receive this bonus.</td>
</tr>
<tr>
<td>1991</td>
<td>14. Individual Performance Measurement Systems are Being Developed and Installed on a Trial Basis With All Pre-Production Employees. This is being done in preparation for an individualized pay-for-performance system. This system must be able to fairly and equitably measure individual performance for it to be effective and bought in to.</td>
</tr>
</tbody>
</table>

As noted earlier, the organizational change process was implemented in a two-phase format. The first phase consisted of employing performance management systems strategy by defining the steps of establishing clear goals, flexible organizational structure and systems, effective measurement and
feedback systems and ensuring that the reward systems were set in place to ensure total organizational strategic and operational goal alignment, both vertically and horizontally. These steps were then applied at the organizational, sub-system unit levels and functional areas, at the individual level and with ad hoc teams. The one theory, technology and single solution component analyses were selected and employed at the various steps. Implementing this type of organizational change also brought about the need for behavioral systems analysis based selection and training philosophies and programs. The second phase of this study consisted of employing ad hoc, problem solving teams which were established to aid in the implementation of strategic plans and to improve key organizational processing and output performance indicators within the guidelines of the strategic plan.

Phase 1: The Total Organizational Performance Change and Management Strategy Implementation

Subject 1: The Organization

The XYZ Company as a whole served as the main subject in that it was the overall health of the company that needed to be maintained in order for it to survive. More specifically, it was the goal of the President and the author to meet three overall objectives in order for the change process to have been considered effective. First, the organization's strategic and operational goals needed to be at or above expected levels in all respects. Second, the experience needed to be more satisfying than frustrating to the personal needs of the President (i.e., completed within his philosophies and beliefs and in a value-added as opposed to cost-cutting method). Third, the organizational culture
established by this change process was designed to meet Win-Win-Win criteria in the following order of priority. The present and future needs of the organization's customers, the organization itself, and the organization's employees and suppliers needed to be met whenever possible.

**Goals.** Key organizational goals were established. First, strategic implementation goals were set in line with the strategic plans. Second, priority customer service goals were established in terms of meeting the customers' total needs in terms of timeliness, quality, cost and service. Third, overall annual operational goals were established in terms of net sales, direct costs and contribution.

**Structure.** The organizational structure was defined to be no more than four layers of management along with three functional units. The four layers of management were responsible for: (1) planning the right things; (2) implementing, monitoring and controlling the right things; (3) doing the right things; and (4) doing things right. The personnel at each level of management are responsible for being self-managers. The functional units include the Engineering sub-unit, the Pre-production sub-unit and the Support services unit. Please see Figure 3 for a depiction of the organizational structure.

**Measurement and Feedback Systems.** Organizational measurement and feedback systems primarily included data on strategic implementations, total customer satisfaction and operational economic output figures. Strategic goals implementation data were informally gathered through internal managers' and an external financial advisor's subjective evaluation. The total customer satisfaction data were polled by the warranty manager on a daily basis from...
priority customers who received shipments from the XYZ Company within the previous five days. He asked whether or not the XYZ Company met their expectations in terms of time, quality, cost and service. They were also asked if they had any suggestions for improved performance. The annual operational data were obtained from externally audited, company financial statements.

In addition to these systems, the President and managers throughout the company established daily output and processing reporting systems by using the comprehensive electronic office system and daily unit, shift and some individual productivity reporting systems in graphic format. The President also had the luxury of receiving weekly, periodic and annual "snap-shots" of economic performance through a weekly accounting system.

For nearly every measurement system, there were auditing systems established as well. An external observer was asked to subjectively evaluate the XYZ Company's progress of implementing strategic plans. The customer satisfaction data are informally evaluated by reviewing the XYZ Company's

![Table]

<table>
<thead>
<tr>
<th>Plan the Right Things</th>
<th>Control the Right Things</th>
<th>Do the Right Things</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooling &amp; Engineering</td>
<td>Parts Production</td>
<td>Organizational Systems</td>
</tr>
<tr>
<td>Vice-President</td>
<td>Vice-President</td>
<td>Vice-President</td>
</tr>
<tr>
<td>Systems Manager</td>
<td>Systems Manager</td>
<td>• Customer Service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Accounting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Human Resource</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Information Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Quality Assurance</td>
</tr>
<tr>
<td>People Manager/Coach</td>
<td>People Manager/Coach</td>
<td>People Manager/Coach</td>
</tr>
<tr>
<td>Team Member</td>
<td>Team Member</td>
<td>Team Member</td>
</tr>
</tbody>
</table>

Figure 3. The XYZ Company's Organizational Structure.
data as they relate to customer commitments, and through repeat business. Operational data are audited by an external accounting firm, and also non-financial-based daily management systems are employed as a daily and weekly auditing tool of the financial data collection system.

Rewards. The organization's reward system was designed in a Win-Win-Win manner. For meeting total customer satisfaction performance levels within the guidelines of the strategic plan, the customers' needs were met according to their expectations, the organization's needs were met in the form of repeat business, word of mouth recommendations, strategic accomplishments and adequate financing, human competence, and management systems; and finally, the employees' and suppliers' needs were met through short and long term job and income security. Please see Figure 4 for a summary snapshot of Subject 1, the organization.

Subject 2: Engineering Services Sub-Unit [Service A]

Subject 2 is an Engineering service unit which provides engineering and prototype tooling services from within one day to approximately six weeks after receiving an order. It is managed within a "job-shop" type environment in which 12 CAD/CAM Project Leaders take on the responsibility for managing a customer's project from the receipt of the order until the customer's total needs are satisfied.

Goals. The Engineering service sub-unit takes on the responsibility of the organizational strategic and operational goals along with sub-goals of their own. Annual shipments, productivity, contribution, direct materials expenses
GOALS

1. Strategic goals meet expected levels or above
2. Priority customer shipments meet their total satisfaction (time, quality, cost and service)
3. Annual operational goals show improvement in performance
   A. Net Sales
   B. Direct Costs
   C. Contribution

STRUCTURE

Responsibility:

PLAN THE RIGHT THINGS ➔
CONTROL THE RIGHT THINGS ➔
DO THE RIGHT THINGS ➔
DO THINGS RIGHT ➔

MEASUREMENT & FEEDBACK SYSTEMS

<table>
<thead>
<tr>
<th>MEASURES</th>
<th>SOURCE OF DATA</th>
<th>METHOD OF MEASUREMENT</th>
<th>ACCURACY CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. % of strategic goal met at or above expected levels (ongoing informal evaluation)</td>
<td>1. CEO and people managers</td>
<td>1. Written Evaluation</td>
<td>1. External independent consultant</td>
</tr>
<tr>
<td>2. Daily % of total customer satisfaction</td>
<td>2. Customer phone survey</td>
<td>2. Warranty specialist interviews customer over the phone</td>
<td>2. No formal check</td>
</tr>
<tr>
<td>B. Direct Costs B. Labor, Materials, and Maintenance applied during a period</td>
<td>3. Computer generated data: B. External audited financial data</td>
<td>3. B. Data are externally audited</td>
<td></td>
</tr>
<tr>
<td>C. Contribution C. Shipments/Direct Costs/Indirect Costs</td>
<td>3. C. External audited financial data</td>
<td>3. C. Data are externally audited</td>
<td></td>
</tr>
</tbody>
</table>

* Notes:
Financial data were translated from dollar amounts to a point system at the same scale to maintain confidentiality. Net sales data are reviewed daily; direct costs and contribution, weekly.

REWARDS

1. Repeat business via total customer satisfaction
2. Increased business via positive word of mouth promotion
3. Ability to meet future customer needs via investment in time, energy and value in strategic directions
4. Financial stability and increased financibility
5. Short and Long-term job security for the majority of employees and suppliers
6. Increased organizational growth and survival

Figure 4. Subject 1: The Organization's Performance System Summary Snapshot.
and direct labor expenses goals or budgets are set. They also have a goal of working in a Win-Win manner with the Pre-production and support services sub-unit in a manner that they all need to meet their goals in order for the total organization to meet its goals. These annual goals are broken down into period, weekly, daily and shift goals. Also, for each job, standards and methods are established.

Structure. The Engineering services sub-unit has three levels of management. The Vice President of Engineering manages the coaches of the three shift operation, 12 project leaders, and several systems support personnel. There are two job categories that report to the coaches; however, they are expected to be self-managers. Although there are many machines and work centers that are employed, there are only two job categories of personnel to manage.

Measures and Feedback Systems. The overall measurement and feedback systems for the Engineering services sub-unit include annual shipments, productivity, contribution, direct material expenses and direct labor expenses. Data are also tracked and plotted in graphic form in terms of daily and shift productivity, reworks, and indirect expenses. Project management tracking systems are also employed. These daily data systems are fed back to the Vice President of Engineering and the President. The operational data are externally audited each year, and the weekly and periodic data are audited by the daily productivity systems.

Rewards. The Engineering services sub-system is rewarded for meeting expected performance levels by maintaining or improving budget monies in the
areas of new machinery, facilities, personnel positions, pay raises, bonuses, training programs, preventative maintenance, and improved information systems. Please refer to Figure 5 for a summary snapshot of Subject 2, the Engineering services sub-unit.

Subject 3: Pre-Production Support Sub-Unit [Service B]

Subject 3 provides pre-production and early market introduction products and services following the completion of the Engineering service responsibilities. This sub-unit is managed in a "short-run" production style. Effective scheduling of resources in a just-in-time style along with sound process control systems are vital success keys.

Goals, Measurement and Feedback Systems. The Pre-production sub-unit also functions to meet annual shipment, productivity, contribution, direct materials expense and direct labor expense goals while aiding the total organization in meeting its strategic, customer service and operational goals. These goals are then further defined in terms of periodic, weekly, daily, shift and individual output goals. Daily productivity, shipments, scrap reports, and rework orders are tracked, plotted and fed back to the Vice President of Pre-production and to the President for review and problem solving. Job standards and methods are established for each order and job cost data are tracked and reviewed.

Structure. The Pre-production support services sub-unit has three levels of management. The Vice President of Pre-production manages the coaches of the three shift operations along with the systems personnel and the technicians who are Engineering sampling specialists. There are two job categories that
GOALS

1. Aligns own goals with the organization's strategic and operational goals
2. Annual operational goals:
   A. Shipments
   B. Productivity
   C. Contribution
   D. Direct Material
   E. Direct Labor
3. Interlocks goals with pre-production services, support services and external customer to form win/win/win relationships

Responsibility:

PLAN THE RIGHT THINGS -> CEO
CONTROL THE RIGHT THINGS -> VP Engineering
DO THE RIGHT THINGS -> Coaches (3 shifts) & CAD/CAM Proj. Leaders
DO THINGS RIGHT -> MOLDMKT

STRUCTURE

MEASUREMENT & FEEDBACK SYSTEMS

<table>
<thead>
<tr>
<th>MEASURES</th>
<th>SOURCE OF DATA</th>
<th>METHOD OF MEASUREMENT</th>
<th>ACCURACY CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A. Shipments</td>
<td>2A. Accounting Reports</td>
<td>2A. Orders shipped and billed</td>
<td>2A. Externally audited financial data</td>
</tr>
<tr>
<td>2B. Productivity</td>
<td>2B. Accounting Reports</td>
<td>2B. Orders Produced</td>
<td>2B. Executive information data</td>
</tr>
<tr>
<td>2C. Contribution</td>
<td>2C. Accounting Reports</td>
<td>2C. Shipments - direct and indirect costs</td>
<td>2C. Externally audited financial data</td>
</tr>
<tr>
<td>2D. Direct Material</td>
<td>2D. Accounting Reports</td>
<td>2D. Materials applied to jobs</td>
<td>2D. Executive information data</td>
</tr>
<tr>
<td>2E. Direct Labor</td>
<td>2E. Accounting Reports</td>
<td>2E. Labor applied to jobs</td>
<td>2E. Executive information data</td>
</tr>
</tbody>
</table>

* Notes:
Financial data were translated from dollar amounts to a point system at the same scale to maintain confidentiality. Shipment, productivity, new sales, reworks, quality rejects, non-direct manufacturing expenses are reported daily. Total financial snapshot reports are posted weekly, by period, annually and are externally audited. Data are reviewed daily and weekly by the CEO and all V.P.s; daily and weekly feedback is provided to the V.P.

REWARDS

1. Positive feedback for achieving results
2. Greater job security today and in the future
3. Recognition from the external environment
4. Opportunities to participate in problem-solving and innovation
5. Better machinery, equipment, information, facilities, fringe benefits, higher skilled workers, training dollars, preventative maintenance, bonus opportunity

Figure 5. Subject 2: The Engineering Support Services Sub-Unit Performance System Summary Snapshot.
report to the coaches which include molders and junior molders. These personnel are expected to be self-managing.

**Rewards.** The Pre-production services unit is rewarded for meeting or surpassing performance goals by receiving extra budget monies for new machinery, improved facilities, increased number of budgeted personnel positions, raises, bonuses, training programs, preventative maintenance systems, and better information systems. The members in the unit have the opportunities to establish problem solving teams. They are also rewarded because the organization is able to meet its goals as a result of their accomplishments. Please see Figure 6 for a summary snapshot of the Pre-production services sub-unit.

**Subject 4: Individual Performer [Cafeteria Supervisor]**

The Cafeteria Supervisor has the responsibility of managing the company cafeteria as if it were her own restaurant. She and her staff are responsible for preparing and serving a balanced and high quality dinner for three shifts of employees along with company guests. She is also responsible for ensuring that all County Health Department requirements are being met and maintained.

**Goals.** The Cafeteria Supervisor is part of the support services sub-unit of the XYZ Company. Her output goals are aligned with the organizational and support services sub-unit's goals. Also, she has specific output goals which must be met in terms of providing good quality food, on time, within budget constraints, and within friendly services in a clean and healthy environment.
GOALS

1. Aligns own goals with the organization’s strategic and operational goals
2. Annual operational goals:
   A. Shipments
   B. Productivity
   C. Contribution
   D. Direct Material
   E. Direct Labor
3. Interlocks goals with engineering services, support services and external customer to ensure win/win/win relationships

Responsibility:

<table>
<thead>
<tr>
<th>PLAN THE RIGHT THINGS</th>
<th>CEO</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL THE RIGHT THINGS</td>
<td>VP Pre-production</td>
</tr>
<tr>
<td>DO THE RIGHT THINGS</td>
<td>Coaches, 3 shifts</td>
</tr>
<tr>
<td>DO THINGS RIGHT</td>
<td>E M J S T O R Y G L S D M T E II L M C D S H E</td>
</tr>
</tbody>
</table>

MEASUREMENT & FEEDBACK SYSTEMS

<table>
<thead>
<tr>
<th>MEASURES</th>
<th>SOURCE OF DATA</th>
<th>METHOD OF MEASUREMENT</th>
<th>ACCURACY CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A. Shipments</td>
<td>2A. Accounting Reports</td>
<td>2A. Orders shipped and billed</td>
<td>2A. Externally audited financial data</td>
</tr>
<tr>
<td>2B. Productivity</td>
<td>2B. Accounting Reports</td>
<td>2B. Orders Produced</td>
<td>2B. Executive information data</td>
</tr>
<tr>
<td>2C. Contribution</td>
<td>2C. Accounting Reports</td>
<td>2C. Shipments - direct and indirect costs</td>
<td>2C. Externally audited financial data</td>
</tr>
<tr>
<td>2D. Direct Material</td>
<td>2D. Accounting Reports</td>
<td>2D. Materials applied to jobs</td>
<td>2D. Executive information data</td>
</tr>
<tr>
<td>2E. Direct Labor</td>
<td>2E. Accounting Reports</td>
<td>2E. Labor applied to jobs</td>
<td>2E. Executive information data</td>
</tr>
</tbody>
</table>

* Notes:

Financial data were translated from dollar amounts to a point system at the same scale to maintain confidentiality. Shipments, productivity, new sales, reworks, quality rejects, inventory transactions, scrap data are reported daily. Total financial snapshot reports are posted weekly, by period, annually and are externally audited. Data are reviewed daily and weekly by the CEO and all V.P.s; daily and weekly feedback is provided to the V.P.

REWARDS

1. Positive feedback for achieving results
2. Greater job security today and in the future
3. Recognition from the external environment
4. Opportunities to participate in problem-solving and innovation
5. Better machinery, equipments, information, facilities, fringe benefits, higher skilled workers, training dollars, preventative maintenance, bonus opportunity

Figure 6. Subject 3: The Pre-Production Support Services Sub-Unit Performance System Summary Snapshot.
One of her key output goals is to score 88 or better on the externally scored, bi-annual county health inspections.

**Structure.** The structure in the case of an individual performer is defined according to the job structure. At the XYZ Company, job models are developed which define the mission statement for each job in terms of outputs. The outputs are measured in terms of time, quality, cost and service measures which support the organizational and sub-unit goals. The job model also includes definitions of reporting outputs and people relationship maintenance outputs with the same sub-parameters. Along with that, a daily behaviorally-based processing system checklist is established based on key behaviors that have been successful in the past in exemplar performers achieving the desired outputs.

**Measurement and Feedback Systems.** The Cafeteria Supervisor's housekeeping performance is scored bi-annually by an external inspector. Her daily performance is self-scored. Each week, she meets with her coach, the Human Resource Manager, to discuss actual performance in relationship to preset goals.

**Rewards.** The Cafeteria Supervisor's performance is rewarded when she receives an "at or above" expected score from the external health inspector, a positive feedback from those who eat in her cafeteria, an "at or above" expected levels of performance on her performance review from her coach, rate increase or bonus based on performance and or competence improvement, and a 100% on her daily self-management checklist. (Note: All individual performers in the XYZ Company have a similar performance management
system as the Cafeteria Supervisor.) Please see Figure 7 for a summary snapshot of the Cafeteria Supervisor performance system model.

**Phase 2: Ad hoc Problem Solving Team Strategy Implementation**

**Subject 5: Ad Hoc Problem Solving Team [The Sick Pay Team]**

The sick pay team is made up of six supervisors or project leaders and the present author serving as organizational facilitator. The participants were asked if they would like to participate on the team, and the meetings were held on company time. The participants were from both Engineering and Pre-production service units. This team was asked to improve the present sick pay policy and system within some general guidelines. They were the first ad hoc team at the XYZ Company.

**Goals.** The sick pay problem solving team took on some of the goals of the organization and added some of their own. One of their goals was to provide short (0-6 days) and long term (seven days and beyond) income protection to all the employees of the company while controlling the costs of the program within the specified budget (approximately $35,000.00 annually). Another goal was to reduce absenteeism and tardiness for improved scheduling to meet the customers' total needs. The President desired to eliminate the ineffective sick pay committee process which met to approve or deny sick pay requests beyond the six unquestioned days.

The sick pay team developed goals of paying employees up to a week's extra pay at Christmas time, and providing income protection insurance from 90 days to age 65 at 60% of the employees' present rate of pay. They were able to offer these plans by showing where they eliminated wasteful costs due
GOALS

1. Aligns own goals with the support services sub-unit goals and the organization's strategic and operational goals
2. One of the main output goals of the Cafeteria Supervisor is score an 88 or above on the bi-annual Health Department evaluation
3. Interlocks goals with pre-production services, engineering services, support services and external customer to ensure win/win/win relationships

STRUCTURE

Responsibility:
A self-management system to do the right things and do things right.

<table>
<thead>
<tr>
<th>Job Mission Statement</th>
<th>Job Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Processing Checklist</td>
<td>Yes No</td>
</tr>
<tr>
<td>1. Things accomplished</td>
<td></td>
</tr>
<tr>
<td>2. Data reported</td>
<td></td>
</tr>
<tr>
<td>3. People relations</td>
<td></td>
</tr>
<tr>
<td>4. Career development</td>
<td></td>
</tr>
<tr>
<td>5. Others</td>
<td></td>
</tr>
</tbody>
</table>

MEASUREMENT & FEEDBACK SYSTEMS

<table>
<thead>
<tr>
<th>MEASURES</th>
<th>SOURCE OF DATA</th>
<th>METHOD OF MEASUREMENT</th>
<th>ACCURACY CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. % of points obtained on 100-point health inspection report</td>
<td>2. County health inspector (same inspector all years until last 2 inspections)</td>
<td>2. Visual inspection of facilities and &quot;Go&quot; or &quot;No Go&quot; checks on inspection forms</td>
<td>2. External auditor for original data source</td>
</tr>
</tbody>
</table>

* Notes:
A weekly behavioral checklist is employed which is the same as the health department inspection form. Supplemental daily checklists are also used. Weekly checklists are reviewed by the Human Resource Manager and feedback provided to the Cafeteria Supervisor.

REWARDS

1. Ability to continue food service for employees and guests
2. Engineering, pre-production and support services needs met
3. Coaches are pleased and positive recognition is given to the Cafeteria Supervisor
4. A healthy environment is maintained for safe food preparation
5. Positive feedback from employees
6. The score is noted in the quarterly performance review
7. Self-praise earned

Figure 7. Subject 4: The Cafeteria Supervisor's Summary Performance System Snapshot.
to one day absences, and by paying sick days at 70% of one's rate of pay instead of 100% of one's rate of pay.

**Structure and Process.** The sick pay team followed an organizational structure as well as a throughput process structure. The team was led through meetings by the leader. The team players took on the roles of facilitator, problem solver, sheet recorder, board recorder, and participants. The team members rotated roles each meeting. The author served as an ongoing team coach and attended each team meeting and provided individual, group, and process feedback to the team and team members. The coach reported the team's progress and questions to the Company President and Vice Presidents following each meeting.

The team employed a four-phase problem solving process. This included: problem definition, brainstorming solutions, designing an implementation plan, and designing an evaluation plan. At the completion of each phase, the team's work was presented to the president for feedback or approval before moving on to the next phase of problem solving.

Each role in the team also had a mission statement and a behavioral checklist which was filled out and turned in at each meeting to the author. The team participants were expected to prepare and bring their own individual ideas to the work session each day, and they were also expected to contribute at least two ideas and/or facilitative comments each day during the team process.

**Measurement and Feedback Systems.** The sick pay team's solution became known as the company's Well Pay Policy and has been in place since 1987. Measures have been tracked in terms of total annual sick pay costs, the
number of sick days paid, the number of attendance incentive days paid, the 
cost of the long term disability insurance policy for the company, and the Total 
Well Pay Policy Benefit costs annually. These data are fed back to the 
President each year. Also, employees who receive attendance incentive checks 
receive a special check and a hand shake from the President and the author.

During the process, the teams measure, record and provide feedback on 
meeting participation, the length of each meeting, and the behavioral checklist 
self-scores. They also track their progress in relationship to their original goals 
of completing each phase of the process by a certain calendar date, within a 
certain number of meetings, within a certain number of hours, and within a 
certain total dollar expense for labor costs, lost productivity and material 
expenses. For each of these measures, the data are self-scored by the team 
members, and turned in to the President and Vice Presidents following each 
meeting.

The team receives feedback from the President following the completion 
of each phase of problem solving. It also receives feedback from the employee 
population at this time as the meeting notes are posted and discussed.

Rewards. The rewards for being a team member are many. First, it is 
an honor for the members to participate on a problem solving team, the 
deliberations of which substantially affect themselves in many way. Second, 
they receive peer recognition for improving the functioning of the organization. 
Third, they get an opportunity to have contact with and receive feedback and 
recognition from the President. Fourth, they receive a formal certificate from 
the President, thanking them for successfully participating on a problem 
solving team. Please see Figure 8 for a summary snapshot of the sick pay 
problem solving team performance model.
**GOALS**

1. Aligns own goals with the organization's strategic and operational goals
2. Takes on their own goals
   A. Ensure employees' short and long-term income protection is maintained
   B. Control the total costs of the program within the costs already being spent
   C. Improve attendance levels for better scheduling to meet customer needs
   D. Eliminate the committee process
3. Interlocks goals with the sub units of the organization to ensure win/win/win relationships

---

**STRUCTURE & PROCESS**

![Diagram of Structure & Process]

**MEASUREMENT & FEEDBACK SYSTEMS**

<table>
<thead>
<tr>
<th>MEASURES</th>
<th>SOURCE OF DATA</th>
<th>METHOD OF MEASUREMENT</th>
<th>ACCURACY CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Annual sick pay amount</td>
<td>A. Payroll data</td>
<td>A. Dollars spent</td>
<td>A. External financial audits and employee feedback</td>
</tr>
<tr>
<td>2. Total number of sick days annually</td>
<td>B. Payroll data taken from employee</td>
<td>B. Employee self-reports sick days</td>
<td>B. Supervisor reviews time cards for accuracy</td>
</tr>
<tr>
<td>2. Total incentive days earned for attendance</td>
<td>C. Payroll attendance card data</td>
<td>C. Payroll manager records</td>
<td>C. Employee feedback</td>
</tr>
<tr>
<td>2. Long-term disability insurance costs annually</td>
<td>D. Accounts payable manager (invoices)</td>
<td>D. Dollars spent</td>
<td>D. Audits</td>
</tr>
<tr>
<td>2. Total program costs annually</td>
<td>E. Sick pay cost + incentive costs + long-term insurance costs</td>
<td>E. Dollars spent</td>
<td>E. Audits</td>
</tr>
</tbody>
</table>

---

**REWARDS**

1. Opportunity to improve the organization and employee benefits
2. Recognition for being asked to participate
3. Praise from the owner
4. Effective results and program maintained to date
5. Learn new problem-solving team skills

---

Figure 8. Subject 5: The Sick Pay, Ad Hoc Team Performance System Snapshot.
Subject 6: Ad Hoc Team [The Performance Review System Team]

The Performance Review System team was established to improve the company's performance review system by changing it from an attribute and behaviorally based system to a performance output based system. There were six middle managers who were asked to participate in this team under the same conditions as those of the Sick Pay Team. Two members of the sick pay team were asked to be on this team to serve as "coaches" for the other team members. The team members were from the Engineering, Pre-production and the organizational support services sub-units.

Goals. The problem-solving team of the performance review system set out to transform an attribute and behaviorally-based performance review system to a results-based system. To effect this, they worked on addressing the need for a developmental review process that was ongoing instead of a performance review session that took place once a year.

Structure and Process. The structure for this process was the same as that employed by the sick pay problem solving team.

Measures and Feedback Systems. The measures and feedback systems were the same as those employed by the sick pay problem solving team. In addition, it was found that in 1986, approximately 41% of the employee population had received a performance review, while in 1991, 100% of the employee population was scheduled to receive four performance review sessions that year (the overall results were not 100% due to management changes that affected the ability to carry the performance reviews out in some areas of the company). Also, in 1986, the performance review form was
entirely attribute and behaviorally based, while in 1991, the performance review form is entirely results based in alignment with the organizational strategic and operational goals.

**Rewards.** The reward system was the same as that employed by the sick pay problem solving team. Please see Figure 9 for a summary of the performance review systems team performance model.

**Subject 7: Ad Hoc Team [The Manufacturing Information Systems Team]**

The manufacturing information systems team was established to come up with a plan for ensuring that operators, quality personnel and supervisors have formal information regarding the customers' expectations of their products. This team was made up of a set-up person, a secondary operations person, a quality patrol inspector and an operator. All were from the Pre-production sub-unit. They operated under the same conditions as those of the sick pay team.

**Goals.** The manufacturing information systems team was established to formalize and improve information flow of manufacturing operations which was inefficient and even defective. The goal was to have complete (100%) and defined manufacturing information available at the time a new job is set-up. A checklist system was established to audit whether or not the information was indeed at the work station. The information included a manufacturing processing sheet, a trimming operations sheet, the quality inspector visit, a good quality molded part and a good quality trimmed part. Five jobs were randomly selected to be audited each week on each of the three shifts. The results of
**GOALS**

1. Aligns own goals with the organization's strategic and operational goals
2. Takes on their own goals
   A. Develop a behavioral and results-based generic performance review form
   B. Develop a developmental review system
3. Interlocks goals with the sub units of the organization to ensure win/win/win relationships

**STRUCTURE & PROCESS**

**Structure:**

```
  Owner
 /   \
<p>| |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
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<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>-----</td>
</tr>
</tbody>
</table>
Organizational Facilitator
```

**Process:**

```
Phase I
Problem Definition

Phase II
Brainstorm Solutions

Phase III
Implementation of Plan Design

Phase IV
Evaluation of Plan Design
```

* Notes:
  Rotate team roles each meeting.
  Must receive approval from the organizational facilitator at the completion of each phase of problem solving and before going on to the next phase.

**MEASUREMENT & FEEDBACK SYSTEMS**

<table>
<thead>
<tr>
<th>MEASURES</th>
<th>SOURCE OF DATA</th>
<th>METHOD OF MEASUREMENT</th>
<th>ACCURACY CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Performance Review items that are behavioral or results-based:</td>
<td>Information systems Specialist's subjective score</td>
<td>&quot;Go&quot; or &quot;No Go&quot; score</td>
<td>Human Resource Manager's subjective score</td>
</tr>
<tr>
<td>1. Pre-group process</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Post-group process</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Today</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of employees who received performance reviews before group process and after</td>
<td>Personnel Manager's data and organizational V.P.'s subjective opinion</td>
<td>&quot;Go&quot; or &quot;No Go&quot; decision as to review form being used in personnel file</td>
<td>Human Resource Manager's subjective opinion</td>
</tr>
</tbody>
</table>

**REWARDS**

Rewards:

1. Opportunity to improve the organization and personnel systems
2. Recognition from the company owner
3. Certificate for accomplishment

Figure 9. Subject 6: The Performance Review System, Ad Hoc Team Performance System Snapshot.
these audits were fed back to the Vice President of the Pre-production sub-unit, the author and the Company President.

Today, this auditing function is performed on 100% of the jobs being produced on an hourly basis. The audit now also checks whether or not there are S.P.C. charts at the press, they are being recorded properly and they are in control.

**Structure and Process.** The structure and processes of this team are the same as those employed by the sick pay team.

**Measures and Feedback Systems.** The measures and feedback systems are also the same as those employed by the sick pay team.

**Rewards.** The reward systems, too, are the same as those employed by the sick pay team. Please refer to Figure 10 for a summary snapshot of the manufacturing information systems team performance model.

**Behavioral Systems Analysis-Based Recruitment, Selection and Human Resource Maintenance Philosophies and Procedures**

Behavioral systems analysis recruitment, selection and human resource philosophies and procedures were made easy at the XYZ Company as a result of implementing the organizational and human resource performance management systems. First, applicants could be selected based on whether or not their goals and philosophies were in line with the organization's goals and philosophies and beliefs. Second, the development of job models made it clear what the performance expectations were for budgeted job categories. Third, knowledge, skill and aptitude levels were defined for the job categories which allowed for better targeting of applicant populations to meet the required
1. Aligns own goals with the organization's strategic and operational goals and the pre-production unit's goals
2. Takes on their own goals
   A. Ensure manufacturing information is complete and available at each process 100% of the time
3. Interconnects goals with the sub units of the organization to ensure win/win/win relationships

**Structure & Process**

**Structure:**

Owner

Organizational Facilitator

Team Leader

Problem Solver Facilitator

Board Recorder

Participant

**Process:**

Phase I

Problem Definition

Brainstorm Solutions

Evaluation of Plan Design

Implementation of Plan Design

Phase IV

Phase III

* Notes:
  Rotate team roles each meeting.
  Must receive approval from the organizational facilitator at the completion of each phase of problem solving and before going on to the next phase.

**Measurement & Feedback Systems**

<table>
<thead>
<tr>
<th>Measures</th>
<th>Source of Data</th>
<th>Method of Measurement</th>
<th>Accuracy Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. % of jobs audited with complete information available</td>
<td>Three production employees surveyed 5 jobs per week</td>
<td>Visual observation and recording a checklist</td>
<td>None</td>
</tr>
</tbody>
</table>

**Rewards**

1. Opportunity to improve the organization
2. Recognition from the company owner
3. Certificate of accomplishment
4. Effective results and solutions maintained
5. Learn new problem-solving team skills

Figure 10. Subject 7: The Manufacturing Information System, Ad Hoc Team Performance System Snapshot.

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criteria. Fourth, for new applications, basic math surveys, interviewing methods, and reference checking methods were all generated based on behavioral systems analysis theories and techniques. Fifth, new employee orientations were developed based on the new organizational and human performance management systems. Sixth, career development programs were introduced to aid individuals in utilizing a project management approach toward career development. Seventh, performance management systems were designed for all job categories which aided all performers in being the best they could be on a daily basis. Eighth, a formal, quarterly, goal-setting plus feedback performance review system was established. Ninth, an organization-wide, contingent pay-for-performance system was set in place in addition to an internally and externally fair base pay system, a top-of-the-line benefit package and a quarterly compensation review system for identifying improvements in knowledge, skill and responsibility along with remedying any inequities that had developed in the system. All of these key elements aided the organization in meeting its performance goals and being a leader in the industry in terms of organizational and human resource development and management systems.

Behavioral Systems Analysis-Based Training Philosophies and Programs

In order to maintain a high performance organization, training of employees became a key element of the XYZ Company's performance maintenance program. First, approximately 30 in-house technical training programs were designed, developed and implemented. These training programs were designed to teach performers the knowledge and skills necessary to become an exemplar performer as quickly and effectively as
possible. Course objectives, syllabi, calendars, lesson plans, trainee knowledge and skill evaluation and feedback systems, and trainee certification systems were installed. Second, the organization's people managers were trained in organizational and human performance management systems so that they could more effectively manage their own performance and their staff's performance. Third, the company offered a 100% tuition reimbursement program. Fourth, the President presented quarterly organizational performance feedback and future goals meetings for all employees to attend. Fifth, an employee monthly newsletter was introduced to increase organizational communication. Sixth, each day a news bulletin was posted throughout the building with organizational information. Seventh, company bulletin boards were used to post recent organizational developments and customer information. All of these training events contributed to the development of high calibre personnel and a high performing organization.
CHAPTER III

RESULTS

Fully-integrated organizational change strategies were found to bring about positive strategic, organizational, team or unit, individual and ad hoc performance improvement results that were maintained over an extended period of time. Significant progress was made on 88% of the strategic implementation plans from the years 1988 to present. Overall, organizational operational data were found to improve as a result of the organizational change intervention which began in 1985. The organization's Pre-production sub-unit's overall performance improved dramatically since 1988, while the Engineering sub-unit's overall performance dropped slightly. The first individually-based performance management system employed by the Company Cafeteria Supervisor and her coach demonstrated that substantial gains could be earned in performance and maintained over extended periods of time. This first implementation led the organization to implementing this same model with individual performers throughout the organization today. Most importantly, fully integrated organizational change strategies employed with ad hoc problem-solving teams brought about significant organizational results that have been maintained over a five-year period.

Phase 1: Total Organizational Change Results

Subject 1: Organizational Strategic Plan Implementation Goals Met

In July of 1988, the President and his top managers worked jointly on
establishing a list of strategic implementation plans. These plans included the establishment of effective organizational performance management systems based upon clear goals, a flexible organizational structure, an effective measurement and feedback system, and a fair and equitable reward system. In addition, key strategic implementation goals were established for the following areas of the organization: (a) customer service (i.e., sales), (b) finance and accounting, (c) technology implementation, (d) human resource management and development, (e) quality systems implementation, and (f) information systems development and management. These plans were to be implemented in a manner that is consistent with the philosophies and beliefs of the President of the company in order to obtain a Win-Win-Win relationship by meeting the customers' total expectations, the organization's goals and commitments to the employees and suppliers' needs.

The author, the President and four internal, independent observers measured the strategic implementation plan in June of 1991, three years after the plan was defined, in terms of progress made in each of these defined areas. Progress was scored at four levels: (1) little or no progress, (2) below expected levels, (3) at expected levels, and (4) above expected levels. Table 3 depicts the scores tallied for each sub-variable.

The total percentage of sub-variables implemented at expected levels and/or above expected levels was scored by the author, the President, and the four internal, independent observers. The scores were 76% and 84% for the author and the President, respectively and 96%, 76%, 80%, and 72% for the independent observers. The net result is that four or more of the six observers indicated that goals were met or exceeded for 22 of the 25 (88%) of the strategic goals articulated in 1988.
Table 3
Organizational Strategic Plan Implementation Performance Scores
by Various Observers

<table>
<thead>
<tr>
<th>Accomplishments</th>
<th>Internal Observers</th>
<th>External Observer</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Author</td>
<td>Owner 1</td>
<td>2</td>
</tr>
<tr>
<td>Clear output goals established:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Strategic</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
</tr>
<tr>
<td>2. Throughput</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>3. Operational</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>4. Unit (Team)</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>5. Shift</td>
<td>Below</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>6. Individual</td>
<td>Below</td>
<td>Below</td>
<td>Meets</td>
</tr>
<tr>
<td>7. Flexible yet effective organizational structure established</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
</tr>
<tr>
<td>Measurement system established for:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Strategic performance</td>
<td>Below</td>
<td>Below</td>
<td>Above</td>
</tr>
<tr>
<td>9. Throughput</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>10. Operational</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>11. Unit (Team)</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>12. Shift</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>13. Individual</td>
<td>Below</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>14. Pay-for-Performance system installed</td>
<td>Meets</td>
<td>Meets</td>
<td>Below</td>
</tr>
<tr>
<td>15. Weekly accounting system installed</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
</tr>
<tr>
<td>16. Centralized data-based business information system further implemented</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
</tr>
<tr>
<td>18. New generation CAD system installed</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
</tr>
</tbody>
</table>
Table 3--Continued

<table>
<thead>
<tr>
<th>Accomplishments</th>
<th>Author</th>
<th>Owner</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>External Observer</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. Customer Contact program implemented</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
<td>Above</td>
<td>Above</td>
<td>Meets</td>
<td>Above</td>
<td>7</td>
</tr>
<tr>
<td>20. Statistical Process Control Implemented</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
<td>7</td>
</tr>
<tr>
<td>21. Training and Cross-training plans implemented</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
<td>Above</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
<td>7</td>
</tr>
<tr>
<td>22. CORE Team concept further developed</td>
<td>Below</td>
<td>Below</td>
<td>Above</td>
<td>Meets</td>
<td>Below</td>
<td>Below</td>
<td>Meets</td>
<td>3</td>
</tr>
<tr>
<td>23. Scheduling systems installed</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
<td>Below</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
<td>6</td>
</tr>
<tr>
<td>24. Implementation process more satisfying than frustrating for the Company owner</td>
<td>Meets</td>
<td>Above</td>
<td>Above</td>
<td>Meets</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
<td>7</td>
</tr>
<tr>
<td>25. Win/Win/Win relationships maintained or improved (Customer/Organization/Employees)</td>
<td>Meets</td>
<td>Above</td>
<td>Above</td>
<td>Above</td>
<td>Meets</td>
<td>Meets</td>
<td>Above</td>
<td>7</td>
</tr>
</tbody>
</table>

Percentages:

<table>
<thead>
<tr>
<th></th>
<th>Positive</th>
<th></th>
<th>Positive</th>
<th></th>
<th>Positive</th>
<th></th>
<th>Positive</th>
<th></th>
<th>Positive</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>76%</td>
<td>84%</td>
<td>96%</td>
<td>76%</td>
<td>80%</td>
<td>72%</td>
<td>92%</td>
<td>82%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>24%</td>
<td>16%</td>
<td>4%</td>
<td>24%</td>
<td>20%</td>
<td>28%</td>
<td>8%</td>
<td>18%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Positive responses are those which Meet and are Above Expectations.*
An external financial consultant who was familiar with the XYZ Company's strategic plans and accomplishments was also asked to score the strategic plans implementation progress since 1988 as a form of "data accuracy check." The total percentage he scored as being positive at the expected or above expected levels of performance was 92%.

Subject 1: Total Annual Organizational Operating Performance Results

Total annual organizational operating performance in terms of net sales, direct costs and contribution were tracked prior to and during the organizational change process over a seven-year period. These data were translated to a 100-point scale to maintain the confidentiality of the organization's actual financial data, however, the data relationships and the changes in performance levels can still be easily identified.

The organizational change process began in 1985 and is still underway to date. Overall sales for the organization have increased 36.23 points as compared with the pre-intervention data, while direct costs have only increased 23.67 points. Organizational contribution improved 13.08 points from the 1984 baseline data which is considered outstanding operational improvements in performance for any organization. See Figure 11 for the annual organizational operating performance changes on these key organizational indicators. These data were obtained from actual, externally audited financial statements completed by a nationally known certified public accounting firm.

Subject 1: Organizational Total Customer Satisfaction Index

Although no pre-post data are available regarding total customer satisfaction improvement, in January of 1991 a system was set in place at the XYZ
Company to audit whether or not their priority customers' time, quality, cost and service needs were being met for each shipment. This new data system is important in order to ensure that the mission statement of the company is met on a continuous basis (i.e., meeting the customers' total needs and expectations) in line with the company's strategic and operational level goals. It is comforting to note through this data tracking system that the XYZ Company is continuously meeting its customers' total needs. Figure 12 depicts the weekly total satisfaction scores obtained and the total number of calls each week.

These data were obtained through the Warranty Specialist of the XYZ Company who systematically contacted by phone the customers' engineers, buyers and quality personnel to determine if their time, quality, cost and
service expectations were met. If they answered "yes" to all four variables, a score of 100% was logged. If they answered "yes" to three variables, a score of 75% was logged. The scores of all phone calls in each week are then averaged.

Two additional questions have recently been added to the phone survey. They are: (1) "Do you have any recommendations for us for systems improvements to provide better products and services to you?" and; (2) "Is there anything else we can do for you at this time?"

![Graph showing customer satisfaction performance achievements by the XYZ Company.](image)

**Figure 12.** Total Customer Satisfaction Performance Achievements by the XYZ Company.

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Subject 2 and Subject 3 are the XYZ Company's two "production/service" units. Annual average performance data for these two units are presented for the years 1988, 1989, 1990, and for the first five periods of 1991. These data include annual average shipments, productivity (or otherwise known as production output volume), labor, materials and contribution (or otherwise known as net profits). These data were translated into a 100-point system to maintain the confidentiality of the XYZ Company's actual financial data.

Subject 3, the Pre-production sub-unit, was growing as a result of the XYZ customers' rapidly growing demand for this type of service. This new market demand created a need for rapid organizational change and development in this sub-unit of the organization while implementing changes in a managed and controlled state.

Through effective strategic choices and organizational change strategies, the XYZ Company was successful in managing this change within its business. Some of the key organizational change strategies included: (a) in January of 1989, 100% of the employee population was trained in S.P.C. theories and techniques and S.P.C. was implemented; (b) an employee with a Ph.D. in Industrial/Organizational Psychology was hired to manage the routine operations and the change process; (c) "roughly right" measures such as "press hours running" each day and each shift began to be tracked--the data were posted in graphic form, and problem solving was introduced; (d) thorough manufacturing information systems were designed and implemented for each process; (e) scheduling and resource planning systems were designed and
implemented; (f) an in-house technical training program was designed and set in place; (g) work flow and work methods were redesigned to improve efficiency and effectiveness of the operation; and (h) in 1991, a contingent pay-for-performance system was set in place. These integrated organizational change theories and technologies, along with the new market demand, brought about dramatic improvements in performance on each of the Pre-production sub-unit's five key economic indicators (See Figure 13). The Pre-production sub-unit's sales volume rose from approximately 39% of the company's sales volume in 1988 to approximately 57% in 1990 and 1991. Productivity rose from 35.31 points in 1988 to 54.65 points in 1991, while labor and material costs increased only by 1.52 points and 2.64 points respectively.

Figure 13. Yearly Average Operating Performance for Subject 3 on Five Key Economic Indicators.
While the Pre-production unit was the focus of attention in implementing organizational changes from 1988 through 1991, Subject 2, the Engineering sub-unit was left mainly unchanged up until September of 1990. Overall economic indicators demonstrated a large drop in shipments and productivity of 11.83 and 10.69 points respectively over the years 1988 through 1989. However, labor and material costs dropped 5.12 and 3.03 points as well. The net result was that overall contribution or net profits dropped 2.41 points. Please see Figure 14 for a depiction of the Engineering services sub-unit's performance from 1988 through period five of 1991.

The primary cause for the drop in performance in the Engineering sub-unit was a lack of sales order volume; however, there may have been other

---

**XYZ COMPANY**

**SUBJECT 2: YEARLY AVERAGES**

<table>
<thead>
<tr>
<th></th>
<th>1988 % CHANGE</th>
<th>1989 % CHANGE</th>
<th>1990 % CHANGE</th>
<th>1991 % CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHIPMENTS</td>
<td>49.47</td>
<td>-9.27%</td>
<td>40.20</td>
<td>0.57%</td>
</tr>
<tr>
<td>PRODUCTIVITY</td>
<td>48.61</td>
<td>-7.67%</td>
<td>40.94</td>
<td>-0.03%</td>
</tr>
<tr>
<td>CONTRIBUTION</td>
<td>12.11</td>
<td>-1.21%</td>
<td>10.90</td>
<td>-0.77%</td>
</tr>
<tr>
<td>DIRECT MATERIAL</td>
<td>6.22</td>
<td>-2.99%</td>
<td>3.23</td>
<td>-0.05%</td>
</tr>
<tr>
<td>DIRECT LABOR</td>
<td>22.12</td>
<td>-4.35%</td>
<td>17.77</td>
<td>1.17%</td>
</tr>
</tbody>
</table>

**Figure 14.** Yearly Average Operating Performance for Subject 2 on Five Key Economic Indicators.
factors contributing to the performance problems as well. In 1988, several key personnel in the customer services and Engineering area left the XYZ Company to establish a competing company. Organizationally, the Engineering services unit was lacking formal scheduling and performance management systems. There was also a lack of strong goal-alignment and interconnectedness of this sub-unit with the organization as a whole and with other sub-systems. Above all, the President focused on ensuring that the Pre-production sub-unit was growing in a controlled format with effectiveness and efficiency in order to meet the new customer demands and requirements.

In late 1990, the Pre-production support services sub-unit's performance was demonstrated to be in reasonable control, and the organizational change focus shifted to the Engineering services sub-unit while continued improvements were made in the Pre-production sub-unit.

Subject 4: Individual Performance Results [The Company Cafeteria Supervisor]

In 1986, the first individual performance management system was implemented with the Cafeteria Supervisor and the present author at the XYZ Company. It was the success of this implementation that encouraged the Company President to allow the implementation of this type of performance management system among all employees at the XYZ Company. The President set a goal that the Cafeteria Supervisor should earn a score of 88% or above on the bi-annual, county health inspection of the cafeteria1. A performance management system was designed with the Cafeteria Supervisor and

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1 The state average for food service establishments was declining from 70% to 65% during the period of 1980 to 1990. (*Hard Scores to Swallow*, October 13, 1991, p. A13)
implemented at that time and is still in place today.

As a result of implementing this system, the inspection scores have continuously been at higher levels than the expected level (please see Figure 15). The average pre-performance management systems implementation score was 83% while the average intervention phase score was 93%.

Phase 2: Ad Hoc Problem Solving Teams' Performance Results

Since 1986, there have been approximately ten ad hoc problem-solving team sessions carried out. The results of three different ad hoc, problem solving teams were selected to be presented in this study. These groups included the first group formed at the XYZ Company in 1986 which worked on improving a sick pay program that had grown out of control, a group that worked on improving the organization's performance review system in

![XYZ COMPANY Graph]

Figure 15. Bi-Annual County Health Department Inspection Scores for Subject 4 [The Cafeteria Supervisor].

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December of 1986 through January of 1987, and a group that met in the
summer of 1989 to analyze the Pre-production support services sub-unit's
systems problems.

Each of these groups was successful in reaching consensus and receiving
approval to implement their plans. The groups were also successful in that
their plans brought about desired results and are still maintained in their
original form or in an improved version until now.

Only one of the ten groups was ended in a failure. This was a group
made up of managers and support staff employees who were working on
improving the flow of computer-based information at the XYZ Company. This
group was trained in how the ad hoc problem solving structure and process
worked, however, they were not required to follow the process. Only portions
of the process were carried out and the team process fell apart with little or no
results accomplished.

Subject 5: An Ad Hoc Team [The Sick Pay Policy Team]

The first team set out to come up with a plan that would provide income
protection for employees who needed it yet cap these expenses in order to
control costs for the program and eliminate unnecessary risks for the company,
reward attendance and "on time" employee behavior, and eliminate the
ineffective and expensive (time and money) administrative committee decision
making process. The plan they came up with included providing short and
long term income protection for all employees at at least 65% of their rate of
pay, up to age 65 for illnesses resulting in hospitalization, doctor defined bed
rest and disabilities not related to work-related injuries.
The team proposed and implemented the following solutions. An attendance incentive system was installed to reward attendance behavior. An employee could earn up to an extra week's pay at Christmas time. The sick pay committee process was eliminated by defining clear policies. The sick pay was not paid for one day absences. Employees were paid 70% of their daily pay for sick days instead of 100%. A long term disability insurance coverage was purchased to aid on controlling long term illnesses costs.

This plan implementation resulted in a number of positive findings. The number of sick pay days decreased from an average of 550 days in 1985 and 1986 to an average of 184.25 days during the four-year period of time following the new plan intervention (please see Table 4). The attendance incentive system was too delayed to be highly effective; however, between 10 and 20 employees, who would not have received it otherwise, received an extra check for "attendance incentive pay" each year. The organization gained by

Table 4

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Sick Pay Costs</th>
<th>Total Sick Days Paid</th>
<th>Incentive Pay (Days Credited)</th>
<th>Long-Term Disability</th>
<th>Total Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>$35,167.70</td>
<td>619</td>
<td></td>
<td>$35,167.70*</td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>$27,928.47</td>
<td>482</td>
<td></td>
<td>$27,928.47*</td>
<td></td>
</tr>
<tr>
<td>1987</td>
<td>$3,825.32</td>
<td>98</td>
<td>66</td>
<td>$15,251.38</td>
<td>$24,381.42</td>
</tr>
<tr>
<td>1988</td>
<td>$4,752.32</td>
<td>120</td>
<td>59</td>
<td>$15,169.14</td>
<td>$24,414.26</td>
</tr>
<tr>
<td>1989</td>
<td>$17,831.89</td>
<td>321</td>
<td>38</td>
<td>$13,261.11</td>
<td>$34,029.00</td>
</tr>
<tr>
<td>1990</td>
<td>$8,114.82</td>
<td>198</td>
<td>31</td>
<td>$12,384.83</td>
<td>$23,222.07</td>
</tr>
</tbody>
</table>

* These costs are only for sick pay; they do not include incentive and long-term disability costs.
having those employees who earned incentive in attendance on regularly scheduled work days throughout the year. The overall costs of the program have been controlled to be below the 1985 figure of $35,167.70 over the past four years the program has been in existence (from 1987 to 1990).

**Subject 6: An Ad Hoc Team [The Performance Review System Team]**

The performance review system team was responsible to come up with a new "generic" performance review form and a system that measured certain key performance results of all employees across the organization in an objective format. They were also responsible to come up with a system that was more developmental for employees yet would provide objective, measurable performance feedback which could be tied in with the organization's pay system.

The team came up with a behavioral and results-based performance review form and defined that a formal performance review needed to be conducted twice per year with each employee. Also, they defined that each manager needed to have a performance tracking and feedback system for monitoring and developing their employees' performance on an ongoing basis.

This new form and system were implemented in 1987. However, instead of bi-annual performance reviews, quarterly performance reviews were implemented. Also, the organization's compensation system was reviewed and updated quarterly following the completion of the performance review process in order to maintain fairness and consistency in the pay system. All performance reviews were to be completed before the management compensation review meetings were held. This approach increased the probability of carrying out the review process completely and on time.
Prior to this new system, in 1986 it was found that only 41% of the employee population received a performance review that year. Today, nearly 100% of the population receives four performance reviews each year. Also, the performance review form has been further developed to be a totally results-based system today. A depiction of the pre, post, and present performance review forms can be seen in Appendices A, B and C.

It was the success of the performance review system problem solving team in implementing the first big steps toward a better performance review system that allowed for all of the additional refinements to be added later on and for the basic systems to be functioning and in place yet today.

Both the Company President and the employees were happier with the new performance review form and system designed by the team than with the old system which subjectively rated aptitude, traits and behaviors of employees when performance review sessions were conducted.

Subject 7: An Ad Hoc Team [The Manufacturing Information Systems Improvement Team]

The manufacturing information systems improvement team analyzed a specific systems failure in order to come up with their improvement plan. They identified the lack of formal information systems for each manufacturing process to be completed. They defined the need for computerized manufacturing processing data sheets for each process to be completed, approved samples for each process, and quality checks of their processes outputs. They developed a systems auditing check sheet in which approximately 15 job processes were audited each week across the three shift operation.

These audits revealed that nearly 100% of the time, the defined
manufacturing information systems were now in place for each job process audited (see Table 5 for Manufacturing Information Systems Audit data). Prior to implementing this system, no formal information was in place. From June 30, 1989 through October 20, 1989, 125 job processes were audited and 122 of the jobs had all of the data available. Only two percent of the audits revealed missing data. When the manufacturing information systems were re-audited in 1990, 192 jobs were audited and 190 of the jobs were found to have the appropriate data in place. Only 1% of the data was found to be missing.

Today, this audit system is still in place; however, at present, the quality patrol personnel are responsible for auditing manufacturing systems to ensure they are in place on a job-by-job basis and on an hour-by-hour basis. Having the quality patrol personnel responsible for ensuring that the manufacturing information systems and related manufacturing processing systems are in place has allowed the XYZ Company to empower the production employees to be responsible for the quality of their production output. When manufacturing information systems problems appear now, they are quickly solved on the spot by the quality patrol personnel, the supervisor and/or the operator themselves.

Results Summary

In summary, employing fully integrated organizational change theories and technologies at each level of an organization and across functional units has resulted in significant positive organizational, strategic and operational results along with improved performance in nearly all sub-organizational subjects. In addition, these positive results have been demonstrated to be maintained and enhanced over extended periods of time.
Table 5
Total Manufacturing Information Systems Reliability Performance Achievements for Subject 5

<table>
<thead>
<tr>
<th>Week</th>
<th>Total Jobs Audited</th>
<th>OK</th>
<th>With Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First Implementation Audit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/21/89</td>
<td>11</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>8/07/89</td>
<td>18</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>8/14/89</td>
<td>14</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>8/21/89</td>
<td>11</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>8/28/89</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9/08/89</td>
<td>13</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>9/15/89</td>
<td>13</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>9/22/89</td>
<td>21</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>9/29/89</td>
<td>12</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>10/04/89</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10/16/89</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>125</td>
<td>122</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(2% from 7/21 to 10/16/89)</td>
</tr>
</tbody>
</table>

|            |                    |    |               |
| **Re-audit** |                    |    |               |
| 1/08/90    | 27                 | 27 |               |
| 1/12/90    | 18                 | 17 | 1             |
| 1/20/90    | 24                 | 24 |               |
| 2/02/90    | 28                 | 28 |               |
| 3/07/90    | 18                 | 18 |               |
| 3/16/90    | 28                 | 27 | 1             |
| 3/27/90    | 10                 | 10 |               |
| 4/06/90    | 23                 | 23 |               |
| 4/16/90    | 16                 | 16 |               |
| **Totals** | 192                | 190| 2             |
|            |                    |    | (1% from 1/08 to 4/16/90) |

These results can be attributed to the change model employed, the managers and employees of the XYZ Company, and the supportive environment that interfaces with the XYZ Company. All of these variables affect the total organization's health and well being.
CHAPTER IV

DISCUSSION

The present study demonstrated that a fully-integrated organizational change strategy can be effective and efficient in implementing organizational strategic plans while also maintaining and improving organizational operational levels of performance in a value-added manner versus a cost-cutting manner. Specifically, the organizational change strategy was made up of behavior analysis and behavior systems analysis, business management and business information systems, and total quality management and statistical process control theories and techniques. These theories and techniques were systematically applied at the organizational, team or unit, and individual levels of performance analysis along with ad hoc problem solving teams. These theories were integrated by employing performance management systems technology which included setting clear, measurable goals, defining an operational structure, establishing a measurement and feedback system in graphic format, and ensuring that the reward systems were set in place to maintain organizational goal-alignment.

The results obtained indicate that the theories and technologies of the treatment package which have previously been found to be effective individually can be systematically integrated and applied to bring about total organizational change. These components include (1) strategic planning-business management theories (Bartlett, 1988; Below, Morrisey & Acomb, 1987; Hrebinia & Joyce, 1984); (2) behavior analysis (Daniels, 1989; Gilbert, 1982).

This study itself was significant for a number of reasons. First, it was the first actual study which set out to implement this type of integrated treatment package at the total organizational level over an extended period of time utilizing an experimental design strategy. Second, typically today, small businesses employ one solution strategies in isolation (i.e., zero defects programs, quality circles, cost-cutting or efficiency improvement plans, cycle reduction programs, statistical process control, participative management, just-in-time, etc.) as opposed to fully integrated change models in order to bring about organizational change. An overall change strategy allows for a more balanced and controlled change process. It also allows for the change to take place more effectively and efficiently. Third, the research community often lacks the opportunity to have a total organization as its subject; however, it is the ideal topic to study given the fact that an organization's short- and long-term survival is of importance to each and every member of an organization. To focus on sub-systems or individuals in an organization as the subject of study can be worthwhile; however, if the real high potential-for-improved performance lies in the organizational systems, addressing sub-performance
problems in isolation may be like operating on a patient's broken leg when his or her heart is not beating properly.

A two-phase, implementation format was employed. First, an organizational performance management system was designed and set in place in order to effectively implement the desired strategic plan changes in a controlled manner while maintaining a balance in operational performance. Second, ad hoc, problem solving teams were established to systematically work on defined organizational change strategies and organizational performance improvement strategies.

In order to systematically analyze this two-phase implementation process, we employed Malott's (1974) "Systems-Design Approach" as an outline for analysis. This analysis outline includes: subject selection, plan design, implementation, evaluation, recycle and continuous improvement and maintenance. Specifically noted in this analysis will be positive and negative factors which may have affected the outcome of each phase of this study. This overall analysis is followed by a brief methodological and future directions discussion.

Phase 1: Total Organizational Change and Maintenance Implementation

Subject Selection

The subject selection may have played a significant role in obtaining positive overall results for a number of reasons. First, the organization was already known to be an industry leader in change and innovation. They receive visitors from throughout the world to come and see the innovative and impressive changes they introduce. In addition, at the time the company was selected, it was performing highly effectively in terms of key operational
measures and had performed this way for years. Therefore, the XYZ Company was a company with a strong financial base and an environment accustomed to change. Second, the XYZ Company had strong internal and external environmental support for change and innovation. The President had a strong desire to be on the leading edge of any and all technologies that related to his business and strongly encouraged implementation of innovations that fit. The XYZ Company's customer base of Fortune 100 and Fortune 500 clients were impressed with this small company's innovativeness and capabilities. They continuously expressed their enthusiasm and excitement with what they found at the XYZ Company and they continued to place their orders with them. The XYZ Company also had many colleges, universities and professional organizations visit their facilities to see in action ideas and innovations they read about. Another outside factor that was not really a supportive factor but did influence the XYZ Company's innovativeness was the fact that many individuals and organizations desired to compete with them. Typically, the XYZ Company saw this competition as a positive factor that influenced them to stay on their toes, and innovate and change even faster. Third, the human resource philosophies and beliefs at the XYZ Company were already very people orientated and the employees of the XYZ Company were proud to be a part of the team and they also continuously strived to be better and better. Finally, the author became employed with the XYZ Company in 1985 as the Personnel Manager and was promoted to Vice President of Organizational and Human Resource Development in 1988. Her role served a dual purpose of aiding the organization in meeting its goals while systematically studying the process as it occurred. The combination of the organizational goals and the research goals served as a powerful influence in implementing the change.
process on an ongoing basis. All these factors have played a large role in bringing about the positive results achieved.

The implementation process occurred over a six-year period and is still underway to date. This process included the establishment of a sound design, an effective implementation strategy, an ongoing evaluation and recycling process, and maintenance components which proved to be effective.

**Design**

There were several organizational change design factors that may have contributed to this study's effectiveness. First, a top-down strategy was employed in which the foundation of the total process was based on the writing of a strategic plan as the guiding process. The main overall goal found in the strategic plan for the company was the "mission statement" which focused on meeting defined customer needs, and then aligning the organization and its employees' needs (Lincoln, 1951). The strategic plan also called for a simple organizational structure of no more than four layers of management and that the organization would be a horizontally-driven organization as opposed to a hierarchically-based organization (Brethower, 1972). It was also defined that all throughput and hierarchical goals must be aligned and interlocked. Through this goal definition and design, a team-oriented approach was developed as opposed to individually-based star performers. Second, the design for the implementation strategy was simple yet effective, so it could be easily understood. The basic design called for setting goals, defining structure and processing methods, measuring performance in relationship to goals and providing feedback, and establishing reinforcing contingencies to maintain
desired performance. This basic design was then merely replicated at each level of analysis and for ad hoc problem solving teams. The final design feature, which has been a positive influencing factor, was the implementation strategy's inclusion of every member of the organization as an active participant in the change process. With all members knowing the overall goals, how their individual goals support the overall goals, and then actively pursuing them, the organization's movement toward the overall goal realization was rapid and effective and momentum building.

Implementation

The implementation process was carried out with a "constancy of purpose" toward the overall strategic plan goals and included the following key elements (Walton, 1990):

1. The strategic plan goals and the reasons for their importance to the organization and the employees, were presented to all employees and were continuously reiterated.

2. The learning strategy of spaced repetitions was employed so that employees could gradually become comfortable with the organization's strategic plan goals and the reasons for their importance.

3. The simple yet effective performance management technology was employed to implement all theories and techniques in an integrated fashion in which all theories and technologies supported rather than competed with one another.

4. Another learning strategy was employed. Employees throughout the company were encouraged to try new things in a small, step-by-step fashion.
Their "coach" and other "coaches" throughout the organization were trained to reward small successes, and work with the employee in systematically solving problems when performance was not at the desired levels. This strategy was an effective strategy for aiding employees in gaining self-confidence or positive self-talk regarding their performance, and it also aided them in gaining trust in the organization and in the change process strategies.

5. The successive approximations strategy was used when performance measurement systems were installed. Managers and employees were encouraged to start measuring some aspect of performance and once they had collected data for a satisfactory length of time, they were aided in coming up with more valid data, more accurate and or more reliable data.

6. The implementation process included competency based training in the areas of technical skills training, organizational performance management, statistical process control and in coaching employees in implementing and maintaining their own self-management of performance systems.

7. An organization-wide, contingent pay-for-performance system was a needed and positive component of the change process. It was implemented in 1991 as a result of the outstanding improvements in performance obtained by the Pre-production services sub-unit the preceding year. The employees were told that one of the organizational goals was that the people should be able to share in improvement of performance when the organization was able to meet its goals within the guidelines of the strategic plans. But due to the employees' job histories, they were not sure this was going to really happen until they saw it on their payroll checks.

8. Since this payment was so delayed from when the performance really occurred, the coaches taught the employees rule statements to function as
"direct-acting contingencies" which would bridge the gap with the indirect acting contingencies (Malott, Shimamune & Malott, 1991). Common goals, common strategies, a strong constancy of purpose, and aligned-reinforcing contingencies were positive contributing factors to the strategic and operational successes obtained in this study (Hrebiniak & Joyce, 1984).

**Evaluation, Recycle and Continuous Improvement**

As the implementation process was ongoing, so was the evaluation, recycling and continuous improvement portion of the organizational change and maintenance strategy. In the process, the following were observed:

1. Outcome, process control, and behavioral-based measurement systems were established to track and plot performance in relationship with the predefined goals and control limits. Employees throughout the organization were trained as to how to read charts and to systematically identify the problems when performance was not at acceptable levels and to come up with performance improvement ideas when performance was demonstrated to be in control.

2. Performance maintenance and performance improvement accomplishments were key outcome performance measures specified on the quarterly employee goal setting and performance review form utilized by the company. Having goals and measures spelled out aided individuals in establishing their own self-management and problem solving systems which helped them reach their overall goals.

3. The President, the author and outside consultants utilized a continuous scanning process to detect when a system's implementation was
working successfully; when the next step in the process could be implemented; when a performer gained enough confidence to implement the next step; and when a systems implementation caused a new problem in the organization that needed to be addressed. The scanning process was also utilized to identify systems implementations that did not work or that were not maintained. This scanning process was taught to all managers in the organization so that they could systematically track their strategic implementations and operational performance maintenance systems. These systematic scanning, evaluation, recycling and ongoing improvement strategies employed at all levels of the organization are positive features of this organizational change process. These contributed substantially to the overall positive results.

**Maintenance**

The organizational change implementations were found to maintain over extended periods of time. There are perhaps a number of internal and external factors that aided in obtaining this effect.

First, employing performance management design strategies increased the probability of maintenance. The establishment of interlocking goals throughout the organization along with the design of reinforcement contingencies to keep these goals aligned was a key maintenance design feature. The performers were trained to develop and update their own daily, behavioral processing checklists which identified key behaviors necessary to be carried out each day in order to reach the performance outcome goals. The training aided the employees to be successful performers, in addition to being able to measure their organizationally-aligned outcome performance. These behavioral checklists were also designed in a manner which would aid
performers in systematically scanning and solving their performance problems. Behavioral checklists were laid out in the categories included in Gilbert's (1978) Behavioral Engineering Model which includes training, standards and methods needs, materials and machinery, and feedback and incentives. This model also includes individual repertoire variable analysis such as knowledge, physical capacity and personal motivations or values and beliefs. Second, the XYZ Company's external environment aided in maintaining the effect in manifold ways. The customers' current and future product and service expectations called for results that could only be brought about through the implementation of organizational changes at the XYZ Company. These requirements included technological interfaces, application of total quality management and statistical process control, and just-in-time deliveries which was made possible by new manufacturing and inventory control systems. Also, as the industry became more competitive, and the XYZ Company needed to improve its performance and services beyond the then existing level. Most importantly, the positive recognition received by the XYZ Company from top companies and professionals for its innovativeness increased the employees courage and desire to do even more.

**Summary: Phase 1**

A treatment package approach has been utilized to bring about positive results: however, no one component of the treatment package can be said to have positively or negatively "caused" the effect. It can be suggested that they may have played an important role based on the fact that each of these component has been tested in isolation in the past and found effective.
Phase 2: Ad Hoc Problem-Solving Team Accomplishments

Subject Selection

Employees of the XYZ Company were asked to volunteer on problem solving teams. The present author asked both production/staff and management employees to voluntarily participate in ad hoc problem solving teams to work on specific organizational problems. The employees were selected because they were familiar with the problem to be worked on, they demonstrated the desire to be a leader and an innovator in their current job, they demonstrated a positive attitude toward the organization in general, and they agreed to be a participant.

Design

There were several key components of the design of the ad hoc problem solving team process. First, the goals of the groups were defined in terms of the organization's strategic plan, the individual performance goals, and the strategy to carry out the team process (Brethower, 1983; Hackman & Oldham, 1986). Second, job models and job aid checklists were defined and developed for the group as a subject and for each job function of the team (i.e., meeting leader, facilitator, board recorder, problem-solving recorder, participant and organizational development facilitator). Third, a four-phase problem solving process was designed with an approval process at the completion of each phase. Fourth, the participants rotated roles each meeting. Fifth, participants did prep-work before each meeting to improve the effectiveness and efficiency of the team process.
Implementation

The success factors of the implementation process included: (a) training all participants on the group goals, process, and job roles; (b) providing continuous coaching by the organizational development facilitator to the group as a whole and privately with each participant based on data obtained from the job aid checklists by the organizational development facilitator; (c) having the President review the teams' performance at the completion of each phase and provide positive and developmental feedback to the team as a whole; (d) sharing progress updates regularly with other employees and receiving input from them and sharing it at the meetings; and (e) bringing in outside expertise when the team members feel they need assistance.

Evaluation, Recycle and Continuous Improvement

Continuous improvement, recycling and improvement strategies have been defined in order to improve ad hoc problem-solving team performance. Nine out of ten of the ad hoc problem-solving teams have had their plans approved, implemented and evaluated to have achieved acceptable performance which was maintained over time. The one group that failed, did so because they were not required to follow the process. Within the team processes themselves, some teams have gotten stuck in certain phases of the problem-solving process and needed to be re-focused on the overall goal and time constraints for the team by the organizational development facilitator; however, their progress has been typically within reason and acceptable. Most individual team performers quickly became comfortable with the roles they play as they were defined in a checklist type format, and they received
coaching from the organizational development facilitator about their roles prior to, during if need be, and after the meeting sessions. There exist still some problems. Some team members try to overpower others, and some team members have a low frequency of idea contribution. But these are minimized by having participation goals defined, prep-work ready, and establishing a system for documenting participation and private individual feedback regarding participation. Aside from these, improvements have been made in the problem solving process by adding problem solving strategies based on statistical process control and behavioral systems analysis in addition to the traditional four-phase problem solving strategy.

**Maintenance**

The maintenance effects of these ad hoc team problem solving sessions have been tremendous. Some of the possible causes of these effects may be the following: Utilizing the complete, four-phase problem solving process, effective implementation and ongoing evaluation designs are developed and implemented. The team members take the time to identify how to effectively implement their solutions and then do so. They also define how they will audit their implementations on a regular basis to determine if they were effective, and then they implement these audits. Typically, a team member will be responsible for auditing the system on an ongoing basis following the completion of the team process, or a manager may be assigned to audit the system. In some cases, the author or the person that has been made responsible to ensure the solutions are audited and maintained receives the audited data. By implementing both thorough and effective team problem solving processes and establishing a responsible person to carry out regular and
frequent auditing of the approved solutions, ad hoc team solutions have been found to maintain effectively.

Summary: Phase 2

In summary, the ad hoc teams have been found to be effective in bringing about and maintaining organizational strategic change and operational performance maintenance or performance improvement with three ad hoc problem solving teams at the XYZ Company. These key features are based on the same components and theories discussed in Phase 1 of this study. Integrated organizational change strategies can be employed to improve total organizational performance when they are applied directly to an organization and when they are applied indirectly to an organization through an ad hoc team process. It is the ad hoc team process, however, that brings about the highest quality solution, obtains buy-in and increases the probability of long-term maintenance effects.

Methodological Strategies Employed and Constraints

The basic research strategy employed in this study was a case study type design (Christian, 1984; Johnston & Pennypacker, 1980; Kazdin, 1982; Poling & Grossett, 1986). Overall strategic plan implementations and organizational operating performance were measured in an AB manner. The strategic plan spelled out variables that needed to be implemented and survey data were collected in 1991 to determine the total percentage of plans implemented at expected or above expected levels of performance. Organizational operation data were presented for the year 1984, prior to the implementing Phase 1 and
Phase 2 interventions. These same data were presented on an annual basis throughout the intervention and up to 1990. A pre-post look at the data can be done by comparing 1984 data to 1991 to determine a point change difference. A multiple baseline design employing multiple measures across two groups (i.e., Engineering unit and Pre-production unit) was utilized in demonstrating organizational change that take place primarily in the Pre-production unit while the Engineering unit was left alone to function as it was. The individual performance change intervention was also presented in an AB manner over an extended period of time. The ad hoc problem solving process was also primarily tested utilizing an AB experimental design that was repeated over three different groups.

Some potential problems with the results obtained in this study may include:

1. One may suggest that the subject selection biased the study and that the subject would have demonstrated the overall positive effects obtained, with or without, the intervention due to the history of the subject and the history of the President being a strong and innovative leader. If this were the primary variable, however, the same overall positive results should have been achieved in the "Service A" unit's performance over the period of time when the study was conducted.

2. With the experimental design employed, one can only make suggestive statements regarding the intervention being the "cause" of the results achieved. However, this type of experimental design provides more valid and reliable information about the possible causes of the positive effects obtained than a "B" design would render (describing the subject and results following an intervention alone). Also, this was the most appropriate design
selected given the present author needed to meet both the needs and goals of
the organization, while also systematically studying the intervention process.

3. When implementing a treatment package, only suggestive statements
about causal relationships may be made about the total treatment package.
Components of the treatment package would need to be systematically studied
in isolation in order to determine their individual effectiveness. However, in
this study, the goal was to improve overall organizational strategic and
operational performance. Therefore, a treatment package approach was the
most appropriate strategy to obtain these results.

A replication of this study may be difficult in another organizational
setting for a number of reasons. First, it would be difficult to find a subject
which has as supportive internal and external environment as the XYZ
Company has. Second, it would also be difficult to amass the wide range of in-
house and external expertise that was available on a consistent basis to the
XYZ Company. Third, since the change process is tailored to the organizational
strategic plan, each organization's organizational plan would be different.

The only way to deal with this replication problem would be by devel-
oping a "generic" organizational change manager's checklist along with "ge-
neric" technology to be employed. Each of these "generic" items would need to
be systematically tailored to meet the guidelines of that organization's strategic
plans. A "generic" change manager's checklist is illustrated in Figure 16.

The results of this study depict some interesting events which one may
expect as a result of the knowledge gained from previous component studies.
The chronological depiction of the implementation process demonstrates that
the implementation does not occur as sequentially as planned, and that the
process needs to be continuously repeated and updated. We do not get
### Goal Setting:

- Mission Statement
- Strategic Plan
- Strategic Implementation Plan
- Operating Structure
- Operating Systems
- Throughput Goals
- Sub-throughput Goals
- Operating Goals
- Unit (Team) Goals
- Shift Goals
- Individual Job Goals
- Aligned Horizontally?
- Aligned Vertically?
- Interlocked?
- Communicated?

### Measurement/Feedback:

- Strategic Measures
- Sub-Strategic Measures
- Throughput Measures
- Sub-Throughput Measures
- Job cost Measures
- Operational Measures
- Unit Measures
- Shift Measures
- Individual Measures
- Behavioral Measures
  - *Time, Quality, Volume, Cost, Class, Service & Data measures for all categories*
  - *Normal levels defined per process*
  - *Frequency of collecting/plotting and feedback as frequent as cost beneficial*
  - *Auditing system in place for each*

### Reward System:

- Progress Recognition
- Organizational-Wide Cont.
- Pay-for-performance
- Organization
- Unit
- Shift
- Individual
- Immed. or rules taught

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**Figure 16. The Organizational Change Agent's Checklist.**
continuous improvement with one shot interventions and inoculations do not automatically work. This implementation process took place in a step-by-step process at points in time when the previous step's change process had taken place and the process somewhat stabilized. Had the whole process taken place all at once, it would have required far greater personnel resources to implement the process, and the employees of the organization may not have been able to handle the great culture changes at such a rapid pace. The organization's client base may have been adversely affected as well.

There were some interesting points to note in the data for Phase 1 of the study. Outstanding survey results were achieved in both the strategic plan implementation data and the customer satisfaction data. These data, however, serve as "roughly right" measures, and more objective measures are currently being installed and set in place. Overall operational contribution (i.e., net

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Figure 16--Continued

<table>
<thead>
<tr>
<th>Training:</th>
<th>Sales</th>
<th>Eng'g</th>
<th>Mfg</th>
<th>Qa</th>
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<th>Maint.</th>
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</tr>
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<td></td>
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<tr>
<td>Continuous desire to learn</td>
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</table>
profit data) dropped in 1986 during the first part of the intervention phase. But this drop took place due to a large customer filing for bankruptcy in that year and not due to intervention factors. Performance gains were seen in the Pre-production unit's contribution performance (i.e., net profit) in 1990 while the material suppliers raised their prices 20% that same year. Therefore, overall performance gains came about as a result of significant increases in human and systems efficiency improvements. Beginning in September of 1990, the organizational development focus was shifted to the Engineering service unit while ongoing improvement was maintained in the Pre-production unit. The sick pay ad hoc problem team was able to obtain tremendous results in that they reduced sick pay and absenteeism and were able to provide income security protection and attendance incentive pay instead and still controlled the overall costs of the program over an extended period of time. Each of the ad hoc team interventions remain in place and effective to date. The managers and employees of the XYZ Company have truly been trained to be goal-setters, risk takers, innovators, and problem solvers. Those who have excelled in these areas are the most successful and contribute the most innovative ideas at the XYZ Company.

The results brought about by the intervention strategy in this study lead to several future research questions. Would similar or better results be achieved in the Engineering unit as was achieved in the Pre-production unit? Testing this question is presently underway. After collecting three and one half years of data of implementing these strategies in the Engineering unit, these data can be compared to the first three and one half years of data when the major implementation was taking place in the Pre-production unit. It is hypothesized that the implementation process would occur very rapidly due to
the success achieved in the Pre-production unit. Would this same strategy produce similar results in the Support Services Unit of the XYZ Company, a white collar productivity unit? It is hypothesized that this type of intervention would work with white collar workers as well. The only difficulty would be the establishment of valid performance measurement systems. Would the application of an individual Pre-production unit performance measurement system for 100% of the employee population bring about significantly more dramatic results for the Pre-production unit? It is hypothesized that a performance improvement would be obtained which would result in higher employee "work satisfaction" due to being able to better see how they are individually performing over time and in comparison to other workers. However, it is believed that the large performance improvement gains already made were obtained as a result of implementing effective organizational and operating unit systems. In addition to better work satisfaction, an effective employee performance measurement system would allow for better personnel management systems and a fair pay-for-performance system. Finally, a replication of the present study in a similar and a different type of organization would demonstrate the external validity of results achieved.

In conclusion, this study has proven to be significant and successful for the XYZ Company. The research community and industry as a whole, would certainly gain valuable information regarding a successful total organizational intervention by the example set forth by the XYZ Company.
Appendix A

Performance Review System Form: Attribute and Behavioral-Based
<table>
<thead>
<tr>
<th>FACTOR</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Job Knowledge</td>
<td>Knowledge of equipment, job, and procedures used while performing day-to-day duties.</td>
</tr>
<tr>
<td>2. Supervision Required</td>
<td>Amount of time employee must seek supervisor's input while performing duties.</td>
</tr>
<tr>
<td>3. Industriousness</td>
<td>Time spent doing productive labor, keeping busy doing company-related work.</td>
</tr>
<tr>
<td>4. Innovativeness</td>
<td>Knack for seeing a new and better way of carrying out duties and still maintain or exceed standards.</td>
</tr>
<tr>
<td>5. Ability to Learn</td>
<td>Mental ability to master new routines, grasp explanations and ability to retain what has been learned.</td>
</tr>
<tr>
<td>7. Appearance and Grooming</td>
<td>Cleanliness and neatness of clothing and personal hygiene.</td>
</tr>
<tr>
<td>8. Courteousness</td>
<td>Amount of tact and politeness used in dealing with others.</td>
</tr>
<tr>
<td>9. Acceptance of Responsibility</td>
<td>Willingly takes on more duties if need be.</td>
</tr>
<tr>
<td>10. Initiative</td>
<td>Self-reliance and resourcefulness: Knows what needs to be done next.</td>
</tr>
<tr>
<td>11. Work Quality</td>
<td>Accuracy and/or appearance and thoroughness of work no matter what volume of work there is.</td>
</tr>
<tr>
<td>12. Work Quantity</td>
<td>Ability to produce the desired amount and results within the desired time limits.</td>
</tr>
<tr>
<td>13. Cooperation</td>
<td>Extent to which employee works well with other employees – subordinates, peers, and superiors.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RATING SCALE</th>
<th>1</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
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<tbody>
<tr>
<td>Exceptional</td>
<td>Well Informed</td>
<td>Satisfactory</td>
<td>Limited</td>
<td>Inadequate</td>
<td></td>
</tr>
<tr>
<td>Very Little</td>
<td>Little</td>
<td>Normal</td>
<td>Considerable</td>
<td>Constant</td>
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</tr>
<tr>
<td>Always</td>
<td>Usually</td>
<td>Productive</td>
<td>Average</td>
<td>Needs</td>
<td>Pushing</td>
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<tr>
<td>Exceptional</td>
<td>Good</td>
<td>Average</td>
<td>Little</td>
<td>None</td>
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<tr>
<td>Exceptional</td>
<td>Above</td>
<td>Average</td>
<td>Fairly</td>
<td>Poor</td>
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<tr>
<td>Performs</td>
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<td>Well</td>
<td>Usually</td>
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<td>Exceptional</td>
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<td>Mannered</td>
<td>Usual</td>
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<tr>
<td>Exceptional</td>
<td>Above</td>
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<td>Good</td>
<td>Reluctant</td>
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<tr>
<td>Superior</td>
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<tr>
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<td>Good</td>
<td>Slow</td>
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<tr>
<td>Exceptional</td>
<td>Good</td>
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<td>Difficult</td>
<td>to Handle</td>
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Appendix B

Performance Review System Form: Behavioral and Results-Based
### EMPLOYEE JOB PERFORMANCE EVALUATION — QUARTERLY REVIEW

<table>
<thead>
<tr>
<th>MINE</th>
<th>JOB TITLE</th>
</tr>
</thead>
</table>

- **LENGTH OF TIME**: [ ]
- **PERIOD COVERED**: [ ]
- **DATE OF EVALUATION**: [ ]

#### 1. QUALITY OF WORK
Consider the accuracy, neatness, and general efficiency of work. Do they consistently meet high work standards?

<table>
<thead>
<tr>
<th>BELOW EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>ABOVE EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### 2. VOLUME OF WORK
Consider the amount of work turned out, and the promptness with which it is completed.

<table>
<thead>
<tr>
<th>BELOW EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>ABOVE EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### 3. KNOWLEDGE OF JOB DUTIES
Consider the present job knowledge and the other work concepts realized in and out of present employment.

<table>
<thead>
<tr>
<th>BELOW EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>ABOVE EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### 4. DEPENDABILITY
Consider the amount of business required, or how well he does to complete assignments on time, keeping promises.

<table>
<thead>
<tr>
<th>BELOW EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>ABOVE EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### 5. ORGANIZATION OF WORK
Consider the accuracy and organizing influence to meet job responsibilities.

<table>
<thead>
<tr>
<th>BELOW EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>ABOVE EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### 6. INITIATIVE
Consider whether he is not to be seen, will suggest or show his own ideas.

<table>
<thead>
<tr>
<th>BELOW EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>ABOVE EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### 7. COOPERATION
Consider ability to work effectively with fellow employees and superiors.

<table>
<thead>
<tr>
<th>BELOW EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>ABOVE EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### 8. COMMUNICATION
Consider the verbal and written communication accuracy, clarity.

<table>
<thead>
<tr>
<th>BELOW EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>ABOVE EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### ATTENDANCE
Consider the employee's respect for and attendance record.

<table>
<thead>
<tr>
<th>BELOW EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>ABOVE EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### JOB SAFETY
Conclude how well the employee always uses safety. Do they report or correct safety hazards?

<table>
<thead>
<tr>
<th>DOES NOT MEET EXPECTED LEVELS</th>
<th>MEETS EXPECTED LEVELS</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### RECOMMENDATIONS
What improvements were made about work being done?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

#### SIGNATURES

- **Employee**: [Signature]
- **Supervisor**: [Signature]

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Appendix C

Performance Review System Form: Results-Based
Managers' Performance Review

NAME:

1. During the past evaluation period, my coach was to have accomplished the following in his/her position:

THING ACCOMPLISHED:
1. (Biggie Results)
2. 
3. 

RESULTS REPORTED ON:
1. (MBQ Weekly Reporting Completed)
2. 
3. 

PEOPLE RELATIONSHIPS MAINTAINED:
Win/Win/Win/Win Boss/Staff/Coworkers/Customers
1. (Customer relationships developed and maintained)
2. (Staff Coached)
3. (Coworker relationships developed and maintained)
4. (Boss' relationship developed and maintained)

PROFESSIONAL DEVELOPMENT GOALS ACHIEVED:
Knowledge/Skill and Attitude developed via training or demonstration of self-management practices
1. 
2. 
3. 

STRATEGIC PLAN IMPLEMENTATION GOAL ACHIEVED:
1. 

SPC/PERFORMANCE MEASUREMENT IMPLEMENTATION GOAL ACHIEVED:
1. 

REVIEW:

Above | Met | Below
--- | --- | ---
Expected Levels | Expected Levels | Expected Levels

Things 1. 
2. 
3. 

Results 1. 
2. 
3. 

People 1. 
2. 
3. 

Skills 1. 
2. 
3. 

Strategic 1. 

SPC 1. 

PEOPLE MANAGER: ___________ DATE: _______
COACH: _______________ DATE: _______
Appendix D

Protocol Clearance Letter
Date: November 14, 1989

To: Susan O'Brien

From: Mary Anne Bunda, Chair

This letter will serve as confirmation that your research protocol, "Organizational Development Through the Implementation of Strategic Plans", has been approved under the exempt category of review by the HSIRB. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the approval application. You must seek reapproval for any changes in this design.

The Board wishes you success in the pursuit of your research goals.

xc: D. Brethower, Psychology

HSIRB Project Number: 89-10-03
BIBLIOGRAPHY


Brethower, D. M. (1983). *Job models for group processing*. Course handout for industrial psychology course at Western Michigan University, Kalamazoo, MI.


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Kyd, C. W. (1988, February). Weekly readings. If you wait for your monthly financials to detect trouble, you may be too late to do anything about it. *Inc.*, 105-106.


