

Navy Personnel Research and Development Center

San Diego, California 92152-7250 TN-96-28 March 1996



A Typology of Organizational Effectiveness

B. Charles Tatum
Delbert M. Nebeker
Donna G. Wolosin

DTIC QUALITY INSPECTED 3

19960417 131

Approved for public release; distribution is unlimited.

A Typology of Organizational Effectiveness

B. Charles Tatum
Delbert M. Nebeker
Donna G. Wolosin

Reviewed, approved, and released by
Kathleen E. Moreno
Director
Personnel and Organizational Assessment

Approved for public release;
distribution is unlimited

DTIC QUALITY INSPECTED 3

Navy Personnel Research and Development Center
53335 Ryne Road
San Diego, CA 92152-7250

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (<i>Leave blank</i>)	2. REPORT DATE March 1996	3. REPORT TYPE AND DATE COVERED Final—1 Oct 92-30 Sep 93	
4. TITLE AND SUBTITLE A Typology of Organizational Effectiveness		5. FUNDING NUMBERS Program Element: Reimbursable Work Unit: O&M, DOD	
6. AUTHOR(S) B. Charles Tatum, Delbert M. Nebeker, Donna G. Wolosin		8. PERFORMING ORGANIZATION REPORT NUMBER NPRDC-TN-96-28	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Navy Personnel Research and Development Center 53335 Rune Road San Diego, CA 92152-7250			
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Office of the Under Secretary of Defense (P&R) Defense Civilian Personnel Management Services Work Force Quality and Productivity Division 2461 Eisenhower, Suite 132 Alexandria, VA 22331		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES Functional Area: Organizational Assessment Product Line: Incentive Systems Effort: Productivity Gain Sharing			
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.		12b. DISTRIBUTION CODE A	
13. ABSTRACT (<i>Maximum 200 words</i>) <p>This report provides a detailed look at how effective performance indicators can be developed to establish a valid and reliable measurement system. The four major components (Productivity, Financial Performance, Stakeholder Relations, and Resource Development) of organizational effectiveness are broken down into subcomponents. Aspects of performance management systems are then discussed in detail for each component and subcomponent.</p> <p>Measurement issues that may be useful for organizations that are contemplating the implementation of a Productivity Gain Sharing system are discussed. This discussion is particularly useful for those organizations that have a predominantly white-collar labor force.</p>			
14. SUBJECT TERMS Organizational effectiveness, productivity, efficiency, financial performance, white collar measurement, productivity gain			15. NUMBER OF PAGES 37
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UNLIMITED

Foreword

Organizational effectiveness is the term used to refer to various aspects of an organization's overall performance. This report describes the four major components of organizational effectiveness (Productivity, Financial Performance, Stakeholder Relations, and Resource Development) and discusses measurement issues that may be useful for organizations that are contemplating the implementation of a Productivity Gain Sharing system.

This report is one of a series of reports on measurement issues related to productivity gain sharing and total quality. The other reports in this series are: (1) *Using the performance indexing to measuring organizational gains in a white collar environment* (Tatum, Nebeker & DeYoung, 1996) (2) *An approach to measurement of quality and productivity for gain sharing: Measuring total organizational value* (Nebeker & Tatum, 1996) and (3) *Integrating measurement approaches in gain sharing and total quality* (Tatum, Shaw, & Main, 1996).

This report also has a companion report that discusses many of the components of organizational effectiveness and provides examples of measures that may be useful for organizations that are contemplating the implementation of a Productivity Gain Sharing system. The companion report is entitled *Examples of white collar measurement using a typology of organizational effectiveness* (Nebeker, Tatum, & Wolosin, 1996).

This effort was conducted under the support of the Office of the Under Secretary of Defense, (Personnel and Readiness), Defense Civilian Personnel Management Service (Work Force Quality and Productivity Division) within reimbursable Work Unit O&M, DOD.

Point of contact regarding this effort is Dr. B. Charles Tatum, Personnel and Organizational Assessment Department, Code 12, Navy Personnel Research and Development Center, San Diego, CA 92152-7250 (619) 553 7955, DSN 553-7955.

KATHLEEN E. MORENO
Director
Personnel and Organizational Assessment

Summary

Problem and Background

Organizational effectiveness will become more of a necessity in the future for Federal agencies with the implementation of the Government Performance and Results Act of 1993. However, it has been a problem, especially for white collar organizations, to measure performance accurately. This poses a particular problem for those organizations that are contemplating the implementation of a Productivity Gain Sharing (PGS) system. The success of PGS requires an accurate reflection of organizational performance.

Objective

The purpose of this report is provide a detailed look at how effective performance indicators can be developed to establish a valid and reliable measurement system. It is to be used in conjunction with Nebeker, Tatum, & Wolosin (1996) as a reference for the theory and practice of performance measurement for organizations wishing to develop measures of organizational effectiveness.

Approach

The report breaks down organizational effectiveness into four major components (Productivity, Financial Performance, Stakeholder Relations, and Resource Development). Aspects of performance management systems are then discussed in detail for each component.

Conclusions

Organizational effectiveness covers a wide range of areas which relate to an organization's overall performance. Emphasis should be placed on total organizational improvement and not just improvement in one area. Organizations interested in increasing their effectiveness need to establish valid and reliable performance measurement systems. Organizations that would like to implement PGS will find this discussion especially useful because the success of PGS rests on the quality of the measurement system.

Contents

	Page
Introduction	1
Productivity	1
Process Quality (Efficiency).....	3
Output Quantity	3
Input Quantity	4
Process Improvement.....	4
Output Quality	6
Inspection.....	6
Prevention	7
Product/Service Attributes.....	7
Timeliness.....	8
Financial Performance.....	8
Profitability (Budgeting).....	8
Revenue (Sales)	9
Cost.....	9
Market Share.....	11
Stakeholder Relations.....	12
Employee Quality of Work Life	12
Employee Health and Safety.....	12
Job Satisfaction	12
Compensation	13
Absenteeism.....	13
Turnover.....	14
Stress.....	15
Job Security.....	15
Employee Motivation.....	16
Organizational Commitment.....	17
Organizational Culture.....	17
Customer Relations.....	18
Internal and External Customers.....	18
Customer Needs and Preferences.....	18
Customer Satisfaction.....	18
Public Relations	18
Business Impact	19
Environmental Impact.....	19
Community Services.....	19

Government Relations 19
 Regulatory Compliance 19
 Favorability of Legislation..... 19
Supplier Relations 20

Resource Development..... 20

 Employee Development..... 20
 Recruitment..... 20
 Selection..... 22
 Training..... 23
 Technology Development..... 23
 Work Methods 24
 Physical Resources..... 24

Conclusion 24

References..... 25

Distribution List..... 29

Introduction

The purpose of this report is to describe a typology and list concepts and terms related to organizational effectiveness. In addition to the discussion of these concepts and terms, research in organizational effectiveness is presented. This will provide readers with a more comprehensive understanding of the organizational effectiveness literature so that they will be able to apply this knowledge to improve the performance of their organization.

Organizational effectiveness is the term used to refer to various aspects of an organization's overall performance. Cameron (1980) described four major approaches to evaluating effectiveness. First, effective organizations can be defined as those where internal functioning is smooth and free of major problems. Such characteristics as trust and benevolence toward individual workers, smooth information flow, and freedom from conflict between work units would typify such an organization. Second, effective organizations may be seen as those that are able to keep their "strategic constituencies" (stakeholders) satisfied. Strategic constituencies are individuals or groups who have a stake in the organization, such as customers, workers, and stockholders. Third, an organization can be described as effective if it is successful in accomplishing its goals, usually with respect to outputs or production. Fourth, an organization can be considered effective if it is successful in acquiring the resources it needs from the environment. In particular, this approach emphasizes successful competition for scarce resources. In turn, these resources are then transformed in a way that is profitable to the organization.

Effectiveness, therefore, should be viewed as a multidimensional rather than a unitary construct. That is, we cannot measure a single aspect of an organization's performance and hope to have captured the essence of its effectiveness.¹ The following is a partial typology of performance concepts that are integral to assessing organizational effectiveness. As shown in Figure 1, these concepts are divided into four categories (productivity, financial performance, stakeholder relations, and resource development) that partially overlap with Cameron's (1980) four major approaches.

Productivity

The first major component of effectiveness shown in Figure 1 is productivity. Productivity is an expression of how efficiently inputs to the organization (e.g., labor, capital, material) are used to produce high quality outputs (goods and services). Productivity includes two general areas: process quality (efficiency) and output quality. Each of these areas can be divided into smaller areas for the purpose of determining organizational effectiveness. Effective organizations accomplish their goals with respect to inputs and outputs in an efficient manner. In addition, they make sure that the quality of the product meets customer requirements, the product is reliable, and the product is uniform. They also pay attention to time criticalities such as shelf life of inventory and delivery of product.

¹The following classification is referred to as a typology rather than a taxonomy, because a typology is based on a theoretical rather than an empirical classification (see Rich, 1992).

Table 1

Typology of Concepts and Terminology Related to Organizational Effectiveness

Productivity	Financial Performance	Stakeholder Relations	Resource Development
1. Process Quality (Efficiency)	1. Profitability (Budgeting)	1. Employee Quality of Work Life	1. Employee Development
<i>Output Quantity</i>	<i>Revenue (Sales)</i>	<i>Employee Health & Safety</i>	<i>Recruitment</i>
1. Goods	1. Units Sold	<i>Job Satisfaction</i>	1. Number Hires Desired
2. Services	2. Price	<i>Compensation</i>	2. Labor Market Size
<i>Input Quantity</i>	• Supply	<i>Absenteeism</i>	3. Recruitment Method
1. Labor	Quantity Produced	<i>Turnover</i>	<i>Selection</i>
2. Capital	Own Production	<i>Stress</i>	1. Psychometric Properties
3. Material	Competitors Production	<i>Job Security</i>	• Reliability
4. Energy	• Demand	<i>Employee Motivation</i>	• Validity
<i>Process Improvement</i>	Quality Produced	<i>Organizational Commitment</i>	• Utility
1. PDCA Cycle	Own Quality	<i>Organizational Culture</i>	2. Instruments
2. Statistical Process Control	Competitor's Quality	2. Customer Relations	<i>Training</i>
2. Output Quality	<i>Costs</i>	<i>Internal/External Customers</i>	1. Coverage
<i>Inspection</i>	1. Units Purchased	<i>Customer Needs/Preferences</i>	2. Validity
1. End-Product Inspection	• Labor	<i>Customer Satisfaction</i>	2. Technology Development
2. Self-Inspection	• Capital	3. Public Relations	<i>Work Methods</i>
3. Waste/Scrap	• Material	<i>Business Impact</i>	<i>Physical Resources</i>
4. Rework	• Energy	<i>Environmental Impact</i>	1. Facilities
<i>Prevention</i>	2. Price	<i>Community Services</i>	• Size
<i>Product/Service Attributes</i>	• Supply	4. Government Relations	• Kind
1. Meets Customer Desires	Quantity Available	<i>Regulatory Compliance</i>	• Condition
2. Product Uniformity	• Demand	<i>Favorability of Legislation</i>	2. Tools & Equipment
3. Fitness For Use	Quantity Available	5. Supplier Relations	• Size
4. Failure Rate	3. Variable & Fixed		• Kind
<i>Timeliness</i>	2. Market Share		• Availability
1. Time Criticality			
2. Shelf Life			
3. Just-In-Time			

Note. PDCA = Plan, do, check, and act.

Process Quality (Efficiency)

An organization takes inputs and transforms them into outputs. A process is any of a number of internal operations that make up the transformation. The quality of the processes, together with the quality of the inputs, determine the quality of the outputs. A high-quality process is one that is continually undergoing improvement and performs the transformation of inputs into outputs in the most efficient manner possible.

Managers in many organizations do not understand, at a sufficient level of detail, how their companies get products developed, made, sold, and distributed. They take a traditional (functional) view of their company which is a vertical view in which each department or business unit has its own management hierarchy (Rummler & Brache, 1991). This view does not show the products or services the organization provides. It also omits the customers who are served and gives no sense of workflow through which the products are developed, produced, and delivered.

In this environment, managers of individual departments tend to perceive other functions as enemies, rather than partners, in the battle against competition. Invisible walls prevent issues from being resolved between peers at low and middle levels. Cross-functional concerns (e.g., matters of scheduling or accuracy that involve two or more departments) are pushed to the highest level. The manager at the top of one department discusses the matter with the manager at the top of the other department. Then, both pass their decision back down to the levels at which the work is accomplished. This culture forces managers to resolve every mundane issue that arises, taking their time away from higher-priority concerns involving customers and competitors. Lower-level people, who could be handling these issues, take less responsibility for the results. They may come to view themselves as mere drones. To make matters worse, if managers at the top of the involved departments are at odds with each other, cross-functional issues may never be resolved. Another outcome of this traditional view is that a department tries to achieve its own individual goals, without concern for the goals of other departments. While one department may be hailed as an "optimized" function, this self-centered behavior can hinder an organization's overall performance. For example, the sales and marketing unit can achieve its goals and become a corporate hero by selling lots of products. If those products can not be designed or delivered on schedule or at a profit...well, that is a problem for research and development (R&D) or manufacturing or distributing; sales did its job.

Most companies today have to compete in a buyer's market (i.e., the customer reigns supreme). Efficient organizations take a different view of the way they look at and think about their management than inefficient organizations. These organizations take a horizontal or "systems" view of management. This view includes the customer, the product, and the flow of work. This view helps managers to see how work actually gets done, through processes that cut across functional boundaries. Finally, this systems view shows the internal customer-supplier relationships through which products and services are produced; that is, it shows us that function B is a customer of function A and is a supplier of function C.

Output Quantity

Outputs are the goods and services produced for use outside of the organization, that are for delivery to the marketplace or the served sector of the society, geography, or economy, and that

are intended directly to achieve the purpose of the organization (Mundel, 1982). Output quantity refers to the number of units completed in some time period. Output quality, on the other hand, is the degree to which each unit of output possess desirable characteristics (Nebeker & Neuberger, 1985). It is necessary to know the quantity of outputs because the value, together with the input quantity, is used to form an efficiency ratio (outputs divided by inputs). Typical outputs can be categorized as product units (pieces, dozens, or cases), physical units (pounds, square feet, gallons, or bushels), sales/service units (orders, deliveries, or invoices), value (sales value or value added), and work content (standard labor hours, standard machine hours, or estimated labor and machine hours) (Ringham, 1982). It is rare, however, except for very specific production processes, that a single output is produced. We might, for example distinguish between a single primary product and a by-product that are produced by a process. By-products are rarely without value (an exception is toxic waste), and measures of by-products as well as desired output must be combined in some manner to measure total output. It is common that desired output consists of several desired products requiring combined measures of output. While a physical measure of output (pounds) might be possible for a single product unit (pieces), the common measure for multiple product units is some measure of monetary value, sales revenue, or value added. Output measures for assessing productivity of the United States economy, for example, often employ gross domestic product estimates in dollar terms (Mahoney, 1988).

Input Quantity

The resources used in the production of output are usually called inputs. The four resources most commonly considered as important inputs are: (1) labor (direct, indirect, staff, management), (2) capital (major equipment purchases, physical facilities), (3) materials (raw material, purchased parts, supplies), and (4) energy (fuel, power) (Nebeker & Neuberger, 1985). Of these, labor is by far the most widely used measure of input (Greenberg, 1973), although as work becomes more automated and technologically advanced, capital and energy become more important. Labor is usually measured as hours worked and, sometimes, as hours paid for. It is often more useful to measure labor hours more specifically by measuring the hours actually worked (direct hours) on the units of output. This allows a more precise accounting of the productivity of labor for the output in question. The number of dollars spent on labor is also used at times as a labor input, but care must be taken to express dollars in constant terms (corrected for inflation) to make meaningful comparisons across time or location (Nebeker & Neuberger, 1985).

One type of efficiency index is labor efficiency, which is computed by dividing the units of output (number of units or standard hours) by the labor hours used in their production.

Process Improvement

Effective organizations realize that the greatest opportunities for performance improvement often lie at the functional interfaces. "Process improvement" is a methodology that can be used to fix a broken process, to redesign an existing process in response to change or in pursuit of continuous improvement, or to design a new process (Rummler & Brache, 1991).

A successful process improvement project is one in which a cross-functional team addresses a business need by creating an efficient and effective process. One approach to process improvement is the Plan, Do, Check, and Act (PDCA) Cycle designed by Shewhart (1931). A more detailed set

of steps that incorporates the PDCA Cycle has been authored by Rummler & Brache (1991). These steps are:

1. Identify a critical business issue (CBI). A CBI is a measurable goal based on a current or potential problem or opportunity that has an impact on the organization's strategy.

2. Select critical processes. Identify one or more cross-functional processes that have the greatest potential to resolve the CBI.

3. Select a leader and members for a process improvement team. This should involve representatives from the departments that contribute to the critical process. Each team member should have a detailed understanding of the steps in at least one of the functions that contribute to the process, be able to comprehend the "big picture," and, not be wedded to the current process.

4. Train the team. Teach the team the rationale and tools of process improvement.

5. Develop "is" maps. The team develops a relationship map (which depicts the internal and external customer-supplier interfaces) and a process map (commonly referred to as a flow chart, which depicts a flow of activities). Both maps depict the current state of affairs; they show what "is."

6. Find the "disconnects". A disconnect is a missing, redundant, or illogical factor that could affect the CBI. A second type of disconnect is not a flaw in the logic of the process, but rather a failure to execute a process efficiently or effectively.

7. Analyze disconnects. This may be done by the entire team or by sub-teams or individuals. If causes are not known, they may require a root cause analysis technique (e.g., Kaoru Ishikawa's fishboning method or Kepper-Tregoe's problem analysis).

8. Develop a "should" map. A map is created that depicts a process that would achieve the goal of the CBI. The team should keep in mind constraints (e.g., financial) so that they are not unrealistic about what can be done.

9. Establish measures. Measurements or standards for the process and sub-processes are developed and inserted at critical junctures in the "should" map.

10. Recommend changes. An action plan is drawn that depicts the steps required to move from "is" to "should."

11. Implement changes. Change the process.

12. Check to determine if the changes had an effect.

13. Institutionalize change if it is successful. Plan a new change if it fails.

Another approach to process improvement is statistical process control (SPC). SPC is a way of approaching process improvement that employs some useful statistical tools. However, without a conceptual framework, or "profound knowledge," the tools and techniques can not be used to full

effectiveness. The aim of SPC is action to improve the underlying (causal) process, which requires both an understanding of the process and an understanding of the way to use the tools and techniques of SPC for continual improvement of the system (Ishikawa, 1985).

Variation can be thought of as “deviation from the target.” While every process displays variation, some processes display controlled variation, while others display uncontrolled variation. Controlled variation (common cause) is characterized by a stable, relatively small, and consistent pattern of variation over time. Uncontrolled variation (special cause) is characterized by a pattern of variation that changes over time (Wheeler & Chambers, 1992).

Consider a manufacturing process making a series of discrete parts, each with a measurable dimension or characteristic. Some of these parts are periodically selected and measured. These measurements vary because the materials, machines, operators, and methods all interact to produce variation. Such “common” variation is relatively consistent over time because it is the result of many contributing factors (Wheeler & Chambers, 1992).

In addition to the multitude of common causes, however, occasionally there are “special” causes that have a large impact on the product measurement (e.g., machines out of adjustment, materials that are slightly different, methods that may be slightly altered, differences between workers, or differences in the environment created by inconsistency on the part of management). These factors are identifiable and the impact of these “special” factors can be sufficient enough to create a marked change in the pattern of variation and thus undermine predictability (Wheeler & Chambers, 1992).

There are two methods to improve a production process: change the process itself or identify a special cause and eliminate it (Wheeler & Chambers, 1992). The statistical tools in SPC (e.g., control charts, fishbone diagrams) can be used to identify the common and special causes of variation. If no special causes are detected, then fundamental changes to the process itself would need to be performed to see improvement. If special causes are detected, they must be eliminated so that variation in the process is due only to common causes and work can continue toward fundamental changes in the process.

Output Quality

The responsibility for product or service quality and the assurance of such is the responsibility of the manufacturers or service providers; they must satisfy the customer with the quality of their products or services. If a product is made through a cooperative effort, the supplier assumes responsibility for quality assurance (Ishikawa, 1985).

Inspection

Within a company, the responsibility for quality assurance should rest with **end-product inspection**. End-product inspection examines products from the standpoint of the end user, and does not assume responsibility for quality assurance. Inspectors should be unnecessary personnel. Their presence reduces the overall productivity of a company because they do not make anything. Inspection is necessary when the processes are poor and defects exist in the product or service (Ishikawa, 1985). In addition, inspection is sometimes necessary when the product or service must

meet strict requirements for safety or accuracy (e.g., handling toxic wastes, public transportation, financial transactions).

Effective organizations promote the view that the responsibility for quality rests with the producers. Parts and materials subcontracted must have their quality assured from suppliers. The purchasers (e.g., assemblers and users) inspect at the time of purchase only if there is doubt of the reliability of the suppliers.

Effective organizations realize that if they educate and train the personnel in their manufacturing division, they can control their own processes and self-inspect their own products before sending them off to the next process (Ishikawa, 1985). If the line worker who is responsible for a particular product is given the task of **self-inspection**, feedback is instantaneous and action can be taken immediately. This approach ensures a sharp reduction in the number of defective units (Ishikawa, 1985). The use of SPC can ensure quality within an acceptable quality level.

Defects can indeed be uncovered through inspection, without the end result measuring up to true quality. When defects are found, the only action the manufacturer can take is that of making adjustments, **reworking** the product, or consigning it to **scrap**. In any event, productivity suffers and costs rise. The yield is lower due to the extra labor involved in the rework and the material that was purchased and used which has to be scrapped. In addition, products that have been adjusted or reworked are more likely to break down, which is exactly the opposite of quality assurance (Ishikawa, 1985). Rework can raise costs even more by setting items aside for rework which all too often are never repaired and in desperation for parts downstream, are commandeered and used just as they are (Deming, 1986).

Prevention

Quality assurance that relies on inspection creates a number of problems, as discussed above. Prevention of defects in the form of process control has a number of advantages. All divisions and employees are involved, so that the responsibility of producing quality products rests with every individual. This creates pride in work and enables employees to put forth their best efforts in the production process. Prevention of defective products begins with new product development. At each step in the product life cycle, from planning for new products to after-sale service or maintenance, evaluations is carefully conducted and quality is assured. Prevention is cost effective in that there is less scrap, waste, and rework involved. This leads to a higher yield as less labor is involved in rework and less material has to be scrapped. Another advantage is that less defective product is shipped to the customer. This results in less time involvement with service of defective product and a perception of increased quality by the customer.

Product/Service Attributes

Product and service attributes are those features that the consumer and user determine to be of value. Some of these are **meeting customer desires** (e.g., a person may desire certain extra features such as a sunroof or cellular phone and so choose a car that has this attribute available), **product uniformity** (e.g., standardization of automobile parts that are interchangeable), **fitness for use** or meeting user specifications (e.g., a person may require a car that has good gasoline

mileage and choose a car that meets this specification), and **failure rate** or reliability (e.g., a person desires a car that will be reliable and will choose one that has a record of being so).

Timeliness

Timeliness involves the **time criticality** of delivery (e.g., products for Christmas are delivered to the customer before December 25) and the shelf life of inventory (e.g., pharmaceuticals that are effective for only a certain period of time).

Effective organizations practice a “**just-in-time**” production and service delivery. Just-in-time was originally introduced into production systems to reduce inventory costs, and was developed and refined by Taiichi Ohno, a Toyota Vice President. This system refers to making the right items, at the right time, in the right quantities, while ensuring quality. This system has set the standard for world-class manufacturing and integrates three critical aspects which affect every facet of a manufacturing business. These are: a war on waste, a commitment to producing products of perfect quality, and having an unprecedented level of involvement in decisions by all workers at all levels (Warne, 1986). More recently, just-in-time systems have been developed for delivering services such as training.

In order for an organization to practice a just-in-time production system, it must have extremely reliable suppliers, and be able to reliably predict the production process and what it will do tomorrow. In other words, the process must be stable and predictable, day after day, week after week. Output and costs also become predictable. This can only be accomplished by practicing SPC (Deming, 1986).

Financial Performance

The second major component of effectiveness shown in Figure 1 is financial performance. Financial performance includes two general areas: profitability (budgeting) and market share. In order to determine the effectiveness of an organization, we can divide each of these into smaller and more specific areas. Effective organizations are able to compete successfully, and acquire scarce resources, for manufacturing their goods or providing their services. In turn these resources are then transformed in a manner that is financially beneficial to the organization.

Profitability (Budgeting)

By its very nature, financial decision-making involves purposeful behavior, which implies the existence of a goal, or more likely, some combination of goals (e.g., maximization of profits, staying within the budget, survival of the organization, achieving a target market share, etc.).

Most organizations in the private sector are concerned with the maximization of profits as an objective. Most organizations in the public sector, by contrast, are concerned with staying within the budget. In either case, this implies that when the organization chooses among alternative strategies, it can forecast with certainty all of the relevant future revenues and costs associated with each policy. However, reality is not so accommodating, and we should realize that the goal of maximization of profits or staying within the budget is at best ambiguous.

Effective organizations are able to forecast with some certainty the sales (revenue) and costs of their product or service. In doing this, they are able to determine the operating budget or profit plan. The operating budget is a detailed plan of how the organization is to be operated in the near future (usually one fiscal year). The basic purpose of developing such a plan is to ensure that the business is run efficiently and thus achieves its financial goals. If these goals are to be reached, managers must make good decisions that will impact future performance. Thus another purpose of budgeting is to force managers to be forward thinking in their decisions. Since the operation of most organizations requires more than one manager, the decisions of the various managers must be coordinated. Managers are justifiably most concerned with their own areas or departments. However, the decisions they make must serve to improve the performance of the total organization (Bornholtz, 1982). Combining individual manager's projections into an overall budget reveals inconsistencies in their plans. Finally, the budget is a statement of how the organization should be operated. After a period of time, actual costs and revenues can be compared to the budget in order to measure management's performance in operating the business. If they are successful in their prediction, they will be able to stay within their budget. If they have been conservative and innovative, they may have money remaining at the end of the fiscal year.

Revenue (Sales)

When an organization attempts to project their budget, a major consideration is their sales or revenue from their product or service. This involves looking at the number of **units sold** (e.g., last fiscal year or last five fiscal years) and the price for which each unit was sold.

When an organization looks at the price of their product or service, they must consider the supply and demand. **Supply** involves the total **quantity produced** in a given market, and how much of this was produced by their **own production** and how much was produced by their **competitor's production**. Did they produce too much or too little? Does this figure need to be adjusted?

When an organization looks at whether or not they need to adjust their production, they must look at the **demand** for the product or service. The demand involves not only the consideration for quantity, but also for the **quality produced**. The organization must look at their **own quality** as well as their **competitor's quality**. They must determine if their product quality is superior, equal to, or inferior to their competition. After this is determined, they need to decide if there is a problem with the quality of their product or service and then devise a plan to rectify the problem if one exists (e.g., American cars are generally perceived to be of lower quality than Japanese cars. American car makers have started to implement better production procedures such as SPC, and now the cars are starting to be perceived as being of higher quality than in previous years).

Cost

The cost of manufacturing a product or providing a service is determined by the **units purchased** and the **price** of the resources. The major costs are: labor, capital, material, and energy. The total costs are determined by multiplying the units purchased by the price per unit. (e.g., if you buy 100 computers at \$2,000 per unit, your total cost is \$200,000).

Labor constitutes one of the most important costs to an operation. It can be classified in a number of ways, including direct-indirect, wage-salary, supervisory-nonsupervisory, and union-nonunion. Other ways to classify labor are according to social, political, and educational divisions and types of work.

Payment for wages may be based upon attendance or performance (Ostwald, 1982). When labor is paid as wages rather than salary, labor cost is usually calculated by the following formula:

$$\text{labor cost} = (\text{time}) \times (\text{wage})$$

Labor costs often include benefits as well as wages or salary.

Capital costs can be classified as the depreciation of facilities and/or equipment. Depreciation is the estimated cost of using the property, plant, and equipment. For example, assume a machine is purchased for \$100,000 and then sold 8 years later for \$20,000. The cost of using this fixed asset is \$80,000 over its 8 year useful life. Income statements are developed annually, so we need to know the cost of using the asset each year. One solution would be to spread the \$80,000 cost evenly over the 8 year useful life, recognizing \$10,000 depreciation per year. However, depreciation can be taken over a number of years (see IRS instructions for guidelines), and may be specific to the facility or equipment. Depreciation costs are also needed for income statements generated during the asset's life. Because of this, the annual depreciation must be based on estimates of both useful life and salvage value (often assumed to be zero). Thus, the purpose of depreciating a fixed asset is to have a fair cost of using the item to deduct from revenues on the income statement. (Bornholtz, 1982).

Material costs are usually referred to as "direct materials." This includes raw materials, purchased parts, standard commercial items, interdivisional transfers, and subcontracted items required for the design and production processes. The cost should be significant enough to warrant the cost of estimating it as a direct cost. Some material, by virtue of the difficulty of computation and estimating, may be classified as either direct or indirect costs (Ostwald, 1982). For example, paint would be a direct material by itself, but once it has been applied to an object (e.g., a door) it becomes an indirect cost.

Scrap (material that is lost because of human mistakes), waste (necessary loss of material due to product and manufacturing-process design), and shrinkage (losses due to theft, or physical deterioration) must be considered as material costs.

Material costs are usually estimated in standard units (e.g., pounds, feet, linear feet, volume, etc.). These units are then totaled in order to determine how many units were used.

Energy costs refer to the amount and cost of the energy which is needed to manufacture a product or delivery of a service. The cost of running the equipment and heating or cooling the plant are measured in kilowatt hours (electricity) and therms (gas). For example, 14,000 kilowatt hours and 4,000 therms were used to heat the facility for the month of January.

The **price** of labor, capital, material, or energy will depend on the **supply** and **demand** of the resources. For example, a PhD Industrial Psychologist (labor cost) is needed to perform research. The supply and demand will determine the cost of hiring this individual. The supply will be

determined by the **quantity available** (e.g., how many PhDs are looking for work). The demand will depend on the **quality available** (e.g., where they were educated or how much work experience they have). In other words, the number of individuals in the pool of candidates will dictate the supply, and the need of the organization for a particular quality will dictate the demand.

The costs of the operation can also be separated into "**variable**" and "**fixed**" costs. Direct material, direct labor, and a portion of overhead costs (e.g., supplies, small tools, losses, and errors) relate strongly to the manufacture of a unit. These costs are described as "variable" in that they tend to be a certain amount for each unit within a finite range of production, and their totals increase linearly with the number of units produced. The remainder of overhead costs (e.g., supervision, depreciation, and property taxes) relate more to plant capacity than to production volume. These costs are described as "fixed" in that they tend to be independent of volume of production within a certain upper and lower range of production.

"Fixed" and "variable" costs in turn affect the price that is charged for the product or service. Prices are set to yield an adequate mark-up over cost, and once established, it is difficult to change them greatly from year to year. Thus management needs stable per-unit costs to serve as a basis for setting prices. Variable costs provide good information in that they remain constant on a per unit basis. The behavior of fixed cost per unit, however, can create a problem. For example, fixed costs are low the first year because volume is high, but they may rise drastically in the second year because volume is low. If management establishes prices based on the first year, then the profits will be less than adequate in the second year. Raising prices in the second year when volume is already low may not be a good idea. A better approach would be to build in highs and lows by using average volume developing fixed cost data for pricing purposes. This average volume is termed "normal volume."

Market Share

Effective organizations perform market analyses on various occasions in order to determine important aspects about the market for their product(s) or service(s). Market analyses provide information such as who the consumers are, where they are located, why they purchase the product or service, where they purchase the product or service, what percentage of the market does the product attract, who is the competition, and what is the trend in product changes? This information can then be used to determine what the total sales were in that particular market (e.g., video games), what percent of all sales in this market was from their **own sales**, and what percent was from their **competitor's sales**.

Once an organization has determined their current market share, they can set goals for increasing their share and explore methods for doing this (e.g., increase production of existing products, develop new products, increase and/or change advertising, make quality improvements, stage a leverage buy-out of the competition, etc.).

Effective organizations realize that they must keep pace with change and what the consumers want in order to retain their share of the market. For example, Atari broke into the market of video games and had the entire market because they were the only organization that made the product. However, they didn't listen to what consumers wanted and lost the market to Nintendo. Nintendo now has a great deal of the market share because they listened to consumers, were innovative, and aggressive.

Ordinarily, we don't think of a public sector organization being concerned with market share, competition, or sales. These are usually concepts that apply to the private sector. However, recent trends in total quality that emphasize customer satisfaction and continuous improvement have shown to be so effective, that even government bureaucracies have adopted them.

Stakeholder Relations

The third major component of effectiveness shown in Figure 1 is stakeholder relations. Stakeholder relations includes quality of employee work life, customer relations, shareholder/owner relations, public relations, and government relations. These five areas can be analyzed individually to determine an organization's effectiveness. Effective organizations are able to keep all of these "strategic constituencies" relatively contented.

Employee Quality of Work Life

A working definition of "quality of work life" (QWL) suggested by Wood, Rasmussen, and Lawler (1975, p. 23) is: "Quality of working life . . . is concerned with how the relationship between individuals and features of their physical, social, and economic work environment affects those on-and-off the job attitudes and behaviors that society considers to be important."

Employee Health and Safety

An effective organization provides a safe and healthy working environment for its employees. Employees are given explicit instructions regarding the safe operation of equipment. They are also encouraged to develop and use safe work habits (e.g., using your legs and back properly when lifting in order to prevent back injury).

Job Satisfaction

Job satisfaction is an individual's attitudes about the work and work setting that reflect their feelings about what happens to them and around them. It is most frequently thought of as some comparison people make between what they desired, expected, wanted, hoped for or was important to them and what they perceive is actually happening to and around them (Locke, 1976).

Studies on job satisfaction have yielded several complex and interesting findings. Job satisfaction is composed of many elements. The elements that seem to occur most frequently are: satisfaction with pay, opportunities for promotion, supervision, coworkers, and the work itself (Smith, Kendall, & Hulin, 1969). There is an intimate relationship between job satisfaction and the quality of work life experienced by employees. QWL is important because it is the result of a management philosophy that values human beings and permeates everything that happens in an organization (Beer, 1980). Perceived QWL is a function of the thousands of everyday actions and behaviors that occur to people in organizations.

Job satisfaction and productivity are usually not strongly related (Vroom, 1964, Locke, 1976). Individual productivity is but one element in overall organizational effectiveness. Job satisfaction is a function of personal variables (e.g., successful coping with mentally challenging work, personal interest in the work itself, work that is not too physically tiring), as well as the result of

what organizations do for people (Locke, 1976). Job satisfaction is partly dependent on the person's age, stage in life, family, and parents. Job satisfaction is also an important correlate of physical and mental well-being. French (1974) showed that dissatisfaction as the result of a poor individual-environment fit was causally related to depression, psychological strain, and other indices of poor health.

Assessments of job satisfaction yield useful information for organizations, especially when accomplished on a continuing basis. Effective organizations view the assessment of job satisfaction as an audit of the feelings of their human resources regarding the various facets of organizational life. They have ongoing programs of assessment, utilizing the data as diagnostic information and as input into corporate and managerial decision-making (Schneider & Schmitt, 1986).

Compensation

How people are paid has a direct impact on organizational effectiveness. How people are paid affects their absenteeism, productivity, and the quality of work they do (Lawler, 1971). In most organizations payroll costs are a significant portion of the organization's total cost of doing business. It is not uncommon to find that payroll costs in manufacturing organizations run as high as 40%, and in service organizations, it may be well over 70% (Lawler, 1981). Studies have shown that 50% or more of the people in an organization are dissatisfied with their pay (Quinn & Staines, 1979). Pay is one of the most important job factors to people and has the power to influence their work behavior and their performance (Lawler, 1981). Rewards that an organization offers directly influence the decisions people make about whether to join an organization, when and if to quit, and whether or not to come to work on a given day (Mobley, Griffeth, Hand, & Meglino, 1979).

Most organizations differentiate between their management and non-management personnel in terms of the fringe benefits provided and whether they are paid on an hourly or salaried basis. New approaches to pay are: skill-based pay, lump salary increases, cafeteria benefit programs, and incentive systems based on performance (e.g. productivity gain sharing) (Steers & Porter, 1987).

Absenteeism

Absenteeism in the United States costs approximately \$26 billion annually (Steers & Porter, 1987). Not only does absenteeism often cause employees to lose income, but organizations lose productivity. In view of the current economic problems facing industrialized countries and the increased competition in the marketplace, such losses can have a severe impact on the national economy (Steers & Porter, 1987).

Steers and Rhodes (1978) developed a model that depicted several major influences on employee attendance. These influences are: (1) satisfaction with job situation (coworker relations, role stress, opportunities for advancement, etc.), (2) employee job values and job expectations, (3) personal characteristics (education, tenure, age, sex, family size), (4) pressures to attend (economic/market conditions, incentive/reward systems, work group norms, personal work ethic, organizational commitment), and (5) the ability to attend (illness & accidents, family responsibilities, and transportation problems).

Another form of absenteeism is "on-the-job" absenteeism. This occurs as efficiency declines in work. The person is physically at the job, but both the quality and quantity of the work deteriorates (Dessler, 1988).

In addition, it is important to consider that absenteeism may be a symptom of a serious problem such as alcoholism or substance abuse. An important resource for an organization to have is an employee assistance program. Employees can receive needed assistance and feel secure that their treatment is kept confidential (Dessler, 1988).

Effective organizations assess the severity of their absenteeism problem and use innovative methods in their attempt to reduce it. One way to reduce absenteeism is to administer pay in ways that maximize satisfaction. Lawler (1977) has shown that absenteeism can be reduced by tying pay bonuses and other rewards to attendance. This approach is costly, but may be less costly than absenteeism (Lawler & Hackman, 1969). It is a particularly useful strategy in situations where both the work content and the working conditions are poor and do not lend themselves to meaningful improvements. In situations where work content or conditions can be improved, such improvements are often the most cost efficient way to deal with absenteeism (Hackman & Oldham, 1980).

Turnover

Many studies have found that turnover is strongly related to job satisfaction and to satisfaction with the extrinsic rewards (e.g., bonuses, medical insurance, expense account, etc.) a person receives (Porter & Steers, 1973). It appears that the reason this is true is that people who are presently satisfied with their jobs expect to continue to be satisfied and, as a result, want to stay with the same organization.

The relationship between turnover and organizational effectiveness is not so simple. It is often assumed that the lower the turnover rate, the more effective the organization is likely to be. This is a valid generalization because turnover is expensive. Studies that have actually computed the cost of turnover have found that it can cost an organization five or more times an employee's monthly salary to replace him or her (Macy & Mirvis, 1976). However, not all turnover is harmful to organizational effectiveness. Organizations can certainly afford to lose some individuals and, indeed, may profit from this, either because they are poor performers or they are easy to replace. In addition, if replacement costs are low, it can be cost effective to keep wages low, as they may be in unskilled jobs. In a situation such as this, it can be more cost effective to keep wages low and suffer high turnover. Thus, turnover is a matter of rate, who turns over, and replacement cost (Lawler, 1981).

The objective should be to design a reward system that is very effective at retaining the most valuable employees. To do this, a reward system must distribute rewards in a way that will lead the more valuable employees to feel satisfied when they compare their rewards with those received by people performing similar jobs in other organizations. The emphasis here is on external comparisons because turnover means leaving an organization for a better situation elsewhere. The best system is one that is based on performance and has competitive reward levels. This encourages the better performers to be satisfied and to stay with the organization (Lawler, 1981). Not only must

the better performers receive more rewards than the poor performers, they must also receive significantly more rewards because they feel they deserve more (Porter & Lawler, 1968).

Finally, managing turnover means managing anticipated satisfaction. This depends on effectively relating rewards to performance. When this cannot be accomplished, all an organization can do is try to reward individuals at an above-average level. In situations where turnover is costly, this should be a cost effective strategy, even if it involves giving out expensive rewards.

Stress

Stress refers to the reaction of people to their environment. It involves both physiological and psychological responses to environmental conditions causing people to change or adjust their behaviors. Stress is generally viewed in terms of the fit between people's needs, abilities, and expectations on the one hand, and environmental demands, changes, and opportunities on the other (Cummings & Huse, 1989).

In the United States, stress-related problems have been estimated to cost about \$75 to \$90 billion annually, nearly 10% of the gross national product (Cummings & Huse, 1989). Effective organizations provide stress-management programs for their employees. There are two types of stress-management interventions which may be employed: those aimed at diagnosis or awareness of stress and its causes, and those directed at changing the causes and helping people to cope with stress.

Stressors can be divided into two categories: occupational or individual. Examples of occupational stressors are work overload, role ambiguity, and role conflict. With regard to work overload, people may experience feelings of having too much to do or having work that is too difficult for them to perform. In addition, they may be unsure of how to perform their job and/or feel confused as to what is expected of them. Individual stressors may occur as a result of individual differences. Examples of individual differences in the susceptibility to stress are hardiness (the individual's personal resistance to stress), social support (the amount of support received by family, peers, and supervisors), age, education, occupation, and a Type A behavior pattern (Cummings & Huse, 1989).

Effective organizations take a proactive attitude toward the reduction of stress in their employees. Interventions for reducing stress fall into two groups: those aimed at changing the organizational conditions causing stress, and those directed at helping people to cope better with stress. Examples of the latter are: role clarification, establishing supportive relationships at work, providing stress inoculation training, providing health facilities for employees (e.g., exercise and biofeedback facilities, and fitness and stay-well programs), and providing employee assistance programs.

Job Security

How important is job security (steady employment) for workers? There is no single answer for all employees. Individual differences play a major part in determining what people want from their work. Employees with high educational levels have different priorities than people in unskilled jobs. In addition, women have different priorities than men (Schultz, 1982).

A study by Champagne (1969) of unskilled workers found that these employees ranked a steady job as their main priority followed by fair pay, a fair boss, job extras (e.g., pensions and sick pay), close in proximity to home, interesting work, good working conditions, nice co-workers, and chance for promotion. It is noteworthy that the factors of interesting work and chance for promotion were not considered to be very important. One theory is that to persons accustomed to deprivation and low-level employment, such rewards are relatively unknown and difficult even to be considered as possibilities (Schultz, 1982).

Paine (1969) found that honors students in college ranked interesting work as their main priority followed by opportunity for self-development, respect, and freedom on the job. This is contrasted with college students who have the same educational level, but have a C average. These students ranked opportunity for salary increases as the most important, followed by interesting work, opportunity for promotion, steady employment, and respect.

Finally, Jurgensen (1978) performed a thirty year study of 57,000 job applicants at a large public utility company. Security and advancement were found to be most important for men, whereas the type of work and the nature of the company were most important for women. These job-preference rankings remained consistent over this thirty year period despite marked social and lifestyle changes which took place between 1945 and 1975. There was a trend, however, for security to decline in importance for men over this time period. He also found that younger job applicants (under age twenty) attached greater importance to co-workers, hours, pay, supervision, and working conditions than did older applicants. Also, the younger applicants were less concerned with advancement, benefits, and security.

Effective organizations take these individual differences into account when hiring new workers. This is very important, because a mismatch between the employee and the organization can be costly. Unless the preferences and expectancies of potential employees are satisfied on the job, the workforce is likely to become frustrated, bored, and unhappy (Schultz, 1982). These workers may then start to look externally to other organizations for employment opportunities.

Research has shown that most people enter an organization with unrealistic or inflated expectations about the nature of the job and the organization (Schultz, 1982). Effective organizations try to prevent this by using good selection criteria and/or realistic job previews (these are discussed in more detail later).

Employee Motivation

In addition to the necessity to acquire financial and physical resources, every organization needs people in order to function. Katz & Kahn (1966) found that: (1) people must be attracted not only to join the organization, but to remain in it; (2) people must perform the tasks for which they are hired, and must do so in a dependable manner; and (3) people must go beyond this dependable role performance and engage in some form of creative, spontaneous, and innovative behavior at work. In other words, for an organization to be effective, it must address the motivational problems of stimulating both the decision to participate and the decision to produce at work (March & Simon, 1958). Other reasons why motivation is important are the ramifications of work behavior (good and bad), increased foreign and domestic competition, advances in technology, and the need to view human resources from a long-term perspective (Steers & Porter, 1987).

There are many definitions of motivation. Campbell & Pritchard (1976, p.63-180) view motivation as the direction, amplitude, and persistence of an individual's behavior, holding constant the effects of aptitude, skill, and understanding of the task, and the constraints operating in the environment. Definitions of motivation generally have three common denominators which may be said to characterize the phenomenon of motivation: (1) what energizes human behavior; (2) what directs or channels such behavior; and (3) how this behavior is maintained or sustained (Steers & Porter, 1987). There are also several theories on work motivation (the discussion of all of these theories is beyond the scope of this paper) but perhaps the most influential are Vroom's (1964) expectancy theory and Locke's (Locke & Latham, 1990) goal setting theory.

Effective organizations view motivation in the context of an interaction between individual, job, work environment, and external environmental characteristics. Individual characteristics are those that a person brings to the work situation. Job characteristics refer to what the person does at work. Work environment characteristics are composed of two elements: work environment (peer group and supervisor) and organizational actions (system rewards, individual rewards, and climate). External environmental characteristics refer to those changes in the external environment that can have a powerful impact on a person's behavior in work organizations (e.g., economic or political changes) (Porter & Miles, 1974).

Organizational Commitment

Organizational commitment is defined as the relative strength of an individual's identification with, and involvement in, a particular organization. It is characterized by (1) a strong belief in and acceptance of the organization's goals and values; (2) a willingness to exert considerable effort on behalf of the organization; and (3) a strong desire to maintain membership in the organization (Mowday, Steers, & Porter, 1979). Mowday, Porter, and Steers(1982) found that organizational commitment was far superior to job satisfaction as a predictor of turnover. This may be because commitment is a general emotional reaction to a worker's employing organization, rather than to a specific job or set of tasks. Also, unlike satisfaction, commitment is thought to develop and change slowly, and is therefore not likely to change with day-to-day events in the workplace, whereas satisfaction is believed to be more sensitive to such events.

Jackson, Stafford, Banks, & Warr (1983) illustrated the potential psychological importance of commitment in an examination of people who had lost their jobs. Psychological stress was found to be higher in those people who had been highly committed to their organizations. Jamal (1984) found that both organizational and professional commitment, or the extent to which workers identify with and become "attached to" their organizations or professions, moderate the relationship between stress and behavior. Highly committed workers seem better able to cope with stress, and are less likely to suffer such negative consequences as reduced performance or increased withdrawal.

Organizational Culture

Culture includes four major elements existing at different levels of awareness and shared by organizational members. These are: basic assumptions, values, norms, and artifacts. These cultural elements are taken for granted and serve to guide members' perceptions, thoughts, and actions (Cummings & Huse, 1989). Culture can affect strategy formulation and implementation, as well

as an organization's ability to achieve high levels of performance. Organizational culture is the product of long-term social learning and reflects what has worked best. It represents those elements that have worked well enough to be passed on to succeeding generations of employees. For example, the cultures of many companies (e.g., IBM, J.C. Penney, and Hewlett-Packard) are deeply rooted in the firm's history. They were laid down by a strong founder and have been reinforced by top executives and corporate success into customary ways of perceiving and acting (Cummings & Huse, 1989). These customs provide answers to practical questions such as: who's who, and who matters around here?; who's us? who's them?; How do we treat us and them?; How do we get things done around here, and why?; and What really matters here, and why?.

Customer Relations

Customer relations refers to the relationships an organization has with its internal and external customers. Effective organizations listen to what their customers want, are customer oriented, and satisfy the requirements of the customer without ignoring price, profit, quality, and cost control (Ishikawa, 1985).

Internal and External Customers

Internal customers are members within the organization that depend on one another in the manufacturing of a product or delivery of a service (e.g., manufacturing would be a customer of R&D). However, one must take a systems view and realize that depending on the situation, all organizational members are both customers and suppliers (e.g., R&D is a supplier to manufacturing). External customers are people who buy and or use the organization's product or service.

Customer Needs and Preferences

Establishing customer needs and preferences can be accomplished through data gathering techniques such as surveys, questionnaires, and interviews.

Customer Satisfaction

Customer satisfaction refers to the continued usage of, purchase of, and confidence in a product or service by users because of a sense of trust in a particular product or service from a particular company that has a record of being reliable over a long period of time (Ishikawa, 1985). Customer satisfaction is important because, without customers, an organization would rapidly go out of business. Satisfied customers are also one of an organization's best assets in regard to acquiring new customers, because satisfied customers will refer others to the organization, which allows the organization to sell more of its product or service without the expense of advertising. In contrast, dissatisfied customers can harm an organization not only by ceasing to purchase its product or service, but by also telling others how bad they think the product or service is.

Public Relations

Organizations must be concerned with their public image and their reputation in the eyes of citizens, taxpayers, shareholders, and owners. Private organizations are especially concerned with

how they are perceived by their shareholders and owners. Public organizations are more concerned with the perceptions of citizens and taxpayers (who are, in a sense, like voting shareholders in a corporation). The Postal Service, the Social Security Administration, the Internal Revenue Service, and the Department of Defense must be concerned with the image they project to the general public. Without a good public image and a sound reputation, their long term survival is put in jeopardy. A positive public image aids survival by attracting future customers, keeping current customers content, and building a base of support from the taxpayers. An organization's public image can be influenced by at least three things: (1) the way it conducts business; (2) the effect it has on the environment, and (3) how well it serves the community.

Business Impact

Public image can be either positive or negative and can exert an economic impact on the organization. If an organization was perceived by the public as being one that had little regard for the consequences of its manner of conducting business, people might refrain from purchasing its product (as some customers have refrained from purchasing products from cosmetic companies that test their product on animals).

Environmental Impact

If an organization was perceived as being one that exerts a negative environmental impact in the course of doing business (e.g., dumps chemicals into a river), people may also refrain from purchasing its product.

Community Services

By contrast, if an organization is perceived as a provider of community services or donates money to the community, people may start supporting the organization and purchase its product.

Government Relations

All organizations must comply with governmental regulations, even if they are privately owned.

Regulatory Compliance

There are specific governmental agencies that ensure regulatory compliance. For example, the Food and Drug Administration sets rules and regulations with which pharmaceutical companies must comply in order to manufacture drugs. If these companies choose not to comply with these regulations, the government has the legal authority to administer penalties or fines, and even to close them down.

Favorability of Legislation

Legislation can also effect organizations and how they operate. Large organizations may hire lobbyists to try to influence legislators when policies are made that may effect their operation. Favorability of legislation can have an economic impact on the organization. For example, legislation may pass stating that organizations must dispose of waste in a certain manner. This could result in a significant increase in the cost of an organization's operations.

Supplier Relations

Suppliers have a stake in the organization's survival and long-term growth. Many U.S. companies, and most government agencies, have a policy of purchasing supplies and awarding service contracts to the lowest bidder. As Deming (1986, pp. 31-34) has pointed out, focusing on purchase price without regard to quality is a bad practice because it lowers the quality of the finished product and can drive good suppliers out of business. A more appropriate policy is to purchase supplies and services on the bases of total cost, rather than initial cost. Total cost includes the cost of delivery delays, defective parts, time spent dickering over price, waste due to incompatible components, lower quality of the finished product, and so forth.

Deming (1986, pp. 35-39) also notes the drawbacks of maintaining several suppliers and re-negotiating contracts frequently. A more sensible and cost-effective approach is to establish a long-term supplier relationship with a single source. This recommendation strikes many as a risky proposition ("What happens when your single supplier misses a critical deadline or goes out of business?"). Deming acknowledges that the strategy is not without risk, but argues persuasively that the advantages far outweigh the disadvantages. The advantages include less variation in supplies, simplified accounting, less time spent in contract negotiations, and economies of scale from purchasing in bulk from a single source. Moreover, if the supplier is selected because it has proven to be reliable in the past, and is practicing total quality, then problems should be minimal. The key to good customer-supplier relationships, according to Deming (pp. 47-48), is an "arms around" rather than an "arm's length" philosophy. The supplier should become a partner rather than an adversary.

Resource Development

The fourth and final component of organizational effectiveness shown in Figure 1 is resource development. Resource development includes two general areas: employee development and technology development. An organization needs to develop its human and technical resources to ensure that internal functioning and communication are smooth and that there is freedom from conflict between work units.

Employee Development

Employee development addresses the knowledge, skills, and abilities of employees. Knowledge is usually defined as the degree to which an employee knows certain technical material. A skill indicates adequate performance on tasks requiring the use of tools, equipment, and machinery. Abilities are physical and mental capacities to perform tasks not requiring the use of tools, equipment, or machinery. Other characteristics of importance include personality, interests, or motivational attributes that indicate an employee will do certain tasks, rather than whether they can do those tasks.

Recruitment

The first step in the development of employees is to ensure that the best people are recruited into the organization. This involves determining the desired number of hires, the labor market size,

and the recruitment method. When determining the number of hires desired, managers need to consider several factors: the demand for your product or service, projected turnover, quality and nature of your employees, decisions to upgrade the quality of your products or services in order to enter new markets, technological and administrative changes that could result in increased productivity, and the financial resources that are available (Dessler, 1988).

Specific techniques for determining personnel requirements include trend analysis, ratio analysis, correlation analysis, a recruiting yield pyramid, and computerized forecasting. The interested reader should refer to Dessler (1988) for a good review of these techniques.

The **labor market size** consists of the internal and external supply of candidates. The internal supply of candidates can be forecast by tapping into qualification inventories and/or computerized information systems of people with the organization. The external supply of candidates can be forecast by assessing general economic conditions and the expected prevailing rate of unemployment, projected local labor conditions, and finally, occupational market conditions.

Most openings in companies are filled with internal persons; entry jobs are the ones most likely to be filled from the outside. For internal recruitment, the central issue is employee retention. Organizational conditions should be such that individuals find enough satisfaction with the work place that they will consider being candidates for other available jobs. For external recruitment, the concern is for the ways people and organizations become attracted to, and seek out, each other. Recruitment is a two-way street; both the individual and the organization must decide whether the fit is good.

The most frequent recruitment method of internal recruitment is job posting. Schuler (1984) reports that more than 50% of all companies announce job openings using a job-posting system. The benefits of internal recruitment are a reduction in start-up time, increased probability of success, and is less costly as compared with external recruitment (Schneider & Schmitt, 1986).

The Bureau of National Affairs (1979) published a listing of different recruiting methods used by organizations when pursuing recruits externally. They are: employee referrals, walk-ins, newspaper advertising, local high schools or trade schools, U.S. Employment Service, community agencies, private employment agencies, career conferences/job fairs, colleges/universities, advertising in special publications, professional societies, radio-TV advertising, search firms, and unions. Some methods are better than others, depending on the type of employee to be hired (e.g. clerical vs. professional). An important consideration to keep in mind is that it is more important to identify the kinds of people who would be successful than to focus on a particular source of recruits.

Finally, an approach to recruitment that concurrently takes into account the attributes of the persons and of organizations is the realistic job preview (RJP). Small doses of organizational reality presented prior to organizational entry have been shown to have positive consequences (Schneider & Schmitt, 1986).

Selection

While recruiting refers to finding the candidates from the job pool, employee selection refers to the process of hiring the right person for the job. Selection is important for three reasons. First, management's performance hinges on subordinates' performance (employees who do not have the right abilities will not be able to perform effectively). Second, effective screening is important because of the cost associated with hiring employees. Third, good selection is important because of the legal implications of using illegal selection procedures (Dessler, 1988).

Title VII of the 1964 Civil Rights Act (as amended by the 1972 Equal Employment Opportunity Act) states that an employer cannot discriminate on the basis of race, color, religion, sex, or national origin. This act bars discrimination on the part of all public or private employers of 15 or more persons. In addition, it covers all private and public educational institutions, the federal government, and state and local governments. In addition to Title VII, there are various other Acts that protect certain categories of persons (such as discrimination on the bases of age, pregnancy, disability, etc.).

Organizations today have the task of selecting employees from a demographically diverse population, while at the same time following the guidelines set forth by Title VII and other acts. The workforce and the jobs to be performed are rapidly changing. Five demographic facts are important: (1) slow growth of the population and workforce in the coming years may result in tighter labor markets, (2) the average age of the workforce is rising, (3) more women are entering the workforce, (4) a larger share of new entrants into the labor force will be minorities, and (5) immigrants will represent the largest increase in the population and the workforce since the first World War. In combination, these demographic changes will mean that the new workers entering the workforce between now and the year 2000 will be much different from those who people it today (Offerman & Gowing, 1990).

Selection instruments (tests, assessment centers, work samples, etc.) must have good **psychometric properties** to be useful. Psychometrics refers to measurement. Measurement consists of rules for assigning numbers to objects in such a way as to represent quantities of attributes (Nunnally, 1978). Examples of these rules are: validity and reliability. **Validity** refers to the degree to which inferences made from predictor scores or other selection procedures are correct or accurate. In other words, does the test measure what it is supposed to measure? **Reliability** concerns the extent to which measurements are repeatable. Measurements are intended to be stable over a variety of conditions with essentially the same results being obtained (Nunnally, 1978).

In addition to the criteria of validity and reliability, the **utility** of the selection instruments (e.g., is it cost effective) should be considered.

Determining utility is a complicated affair and requires information on the (1) cost of the selection tests, (2) validity and reliability of the tests, (3) costs of recruiting and training, (4) selection ratio (the proportion of the candidates that are selected), and (5) estimates of the employees' dollar contribution to the organization. With this information, there are several techniques for conducting what is known as "utility analysis" (e.g., Cascio & Ramos, 1986; Schmidt, Hunter, McKenzie, & Muldrow, 1979). A utility analysis of an organization's selection procedures will show, in dollars, the effectiveness of the current procedures. A utility analysis can

also be used as a metric to measure the degree of improvement resulting from changes in the selection procedures. For example, if the organization adopts a new, more expensive selection test with a higher validity, a utility analysis can show whether the new test is cost effective.

There are several types of instruments. Work samples, peer evaluations, and assessment centers tend to have the highest validity, but are not necessarily the most cost efficient or practical. Assessment centers are widely used for selecting management personnel (Schneider & Schmitt, 1986). Indirect evaluations such as psychological tests, academic performance and interviews, have the lowest validity. This suggests that predictors such as these are best used in conjunction with other selection devices. Paper and pencil tests are probably the most economical, but not necessarily the best predictor of future performance (Dessler, 1988).

Training

In the development of effective management practices, there is a difference between effectiveness (doing the right things) and efficiency (doing things right or correctly). Much the same is true in the development of training programs. There is a high payoff for efficiency (learning the competencies correctly), but there is a higher payoff for effectiveness (learning the right competencies). Training and development refers to a planned effort by an organization to facilitate the learning of job-related behavior on the part of its employees (Wexley & Latham, 1981). A simple way of examining the deficiency of employees is first to list the behaviors required of the job (perform a job analysis). Next, conduct a performance analysis to determine training requirements; this basically involves appraising the performance of current employees to determine if training could reduce performance problems such as excess scrap or low output (Connellan, 1978). The **coverage** of the training program should include all employees who possess deficiencies in the behaviors required of the job.

The objectives of training programs can be stated in terms of cost-related results or behavioral outcomes such as: increased quantity and quality of units produced, or reduced absenteeism and turnover. Measures of training success are: reaction, learning, behavior, and results (Wexley & Latham, 1981). The **validity** of a training program refers to how well the learning resulted in the desired behavioral change.

Technology Development

A technology consists of the physical and informational resources by which people can systematically bring about some desired result (Davis & Wacker, 1982). There is a clear trend toward more highly technologically sophisticated systems in work environments (Turnage, 1990). Researchers believe that technology results in increased productivity and product quality, and as a result will permit the United States to regain a competitive edge in global market competition (Cascio & Zammuto, 1987). Technological developments such as programmable automation and various forms of computer-assisted design and computer-assisted manufacturing enable workers to increase the production and quality of output.

However, the introduction of new technology cannot guarantee increased productivity. An increase in technology has its greatest impact on semiskilled and unskilled jobs because it requires a highly trained workforce to design and operate the systems. If new technology is to be successful, there must be a counterbalancing human response or else the technology is rejected. Naisbett (1982)

referred to this phenomenon as “high tech/high touch,” meaning that whenever technology is introduced (high tech) it must facilitate and enhance workers’ skills (high touch) rather than alienate and de-skill them. Effective organizations realize that in the long run, sophisticated technology simply will not work unless the proper allocation or balance is struck between human and machine systems.

Work Methods

One resource that organizations have is the methods they use to produce their product or deliver their service. Examples of these are automated management information systems and just-in-time inventory systems. Effective organizations are constantly experimenting with improving their methods by adopting industrial engineering methods or performing benchmarking studies.

Physical Resources

One type of physical resource is the **facilities**. Facilities include the physical **size** of the buildings or space used by the organization. Other factors are the **kind** of buildings (e.g., warehouse or office building) and the **condition** of the facility (e.g., adequate lighting and ventilation, or safety factors).

Tools and equipment represent another type of physical resource. The **kind, condition, and availability** of tools and equipment which are necessary to perform work. An example of this is a research facility that uses computers. Do the computers possess enough power to process data? Are they kept in good working order? Are there enough for everyone? Are they constantly being upgraded in order to process work faster and easier?

Conclusion

Organizational effectiveness covers a wide range of areas that relate to an organization’s overall performance. Effective organizations realize that there must be a balance between these areas. If one aspect of the organization is performing optimally (e.g., human resources are being effectively utilized), but another area is performing poorly (e.g., the budget can not be adhered to), then the overall ability of the organization to perform will be compromised.

Effective organizations perform an analysis of each major component of effectiveness to determine where it is performing well or poorly. They can then prioritize where change will take place in order to have the greatest impact toward increasing overall organizational performance.

Reviewing the concepts and terms set forth in this paper will provide an organization with a structure for assessing where its strengths and weaknesses lie. It will also be thought provoking in that it may cause managers to think about areas not previously attended to, yet are important in the achievement of organizational goals.

References

- Beer, M. (1980). *Organization change and development: A systems view*. Santa Monica, CA: Goodyear.
- Bornholtz, E. F. (1982). Company and cost accounting. In G. Salvendy (Ed.), *Handbook of industrial engineering* (pp. 9.1.1-9.1.20). New York: Wiley.
- Bureau of National Affairs (1979). Recruiting policies and practice. *Personnel policies forum*, Survey No. 126. Washington, DC: Author.
- Cameron, K. (1980). Critical questions in assessing organizational effectiveness. *Organizational Dynamics*, 9(4), 66-80.
- Campbell, J. P., & Pritchard, R. D. (1976). Motivation theory in industrial and organizational psychology. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 63-130). Chicago: Rand McNally.
- Cascio, W. F., & Ramos, R. A. (1986). Development and application of a new method for assessing job performance in behavioral/economic terms. *Journal of Applied Psychology*, 71, 20-28.
- Cascio, W. F., & Zammuto, R. F. (1987). *Societal trends and staffing policies*. Denver, CO: University of Colorado.
- Champagne, J. E. (1969). Job recruitment of the unskilled, *Personnel Journal*, 48, 259-268.
- Connellan, T. K. (1978). *How to improve human performance: Behaviorism in business and industry*. New York: Harper & Row.
- Cummings, T. G. & Huse, E. F. (1989). *Organization development and change* (4th ed.). New York: West Publishing Co.
- Davis, L. E., & Wacker, G. J. (1982). Job design. In G. Salvendy (Ed.), *Handbook of industrial engineering* (pp. 2.1.2 - 2.1.29). New York: Wiley.
- Deming, W. E. (1986). *Out of the crisis*. Cambridge, MA: Massachusetts Institute of Technology, Center for Advanced Engineering Study.
- Dessler, G. (1988). *Personnel management* (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.
- French, J. R. P., Jr. (1974). Person-role fit. In A. McLean (Ed.), *Occupational stress* (pp. 70-79), Springfield, IL: Thomas.
- Greenberg, L. (1973). *A practical guide to productivity measurement*. Washington, DC: Bureau of National Affairs.
- Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley.

- Ishikawa, K. (1985). *What is total quality control? The Japanese way* (D. J. Lu, Trans.). Englewood Cliffs, NJ: Prentice-Hall.
- Jackson, P. R., Stafford, E. M., Banks, M. H., & Warr, P. B. (1983). Unemployment and psychological distress in young people: The moderating role of employment commitment. *Journal of Applied Psychology, 68*, 525-535.
- Jamal, M. (1984). Job stress and job performance controversy: An empirical assessment. *Organizational Behavior and Human Performance, 33*, 1-21.
- Jurgensen, C. E. (1978). Job preferences (What makes a job good or bad?), *Journal of Applied Psychology, 63*, 267-276.
- Katz, D., & Kahn, R. (1966). *The social psychology of organizations*. New York: Wiley.
- Lawler, E. E. III (1971). *Pay and organizational effectiveness. A psychological view*. New York: McGraw-Hill.
- Lawler, E. E. III (1977). Reward systems. In J. R. Hackman & J. L. Suttle (Eds.), *Improving life at work* (pp. 163-226). Santa Monica, CA: Goodyear.
- Lawler, E. E. III (1981). *Pay and organization development*. Reading, MA: Addison-Wesley.
- Lawler, E. E., III & Hackman, J. R. (1969). The impact of employee participation in the development of pay incentive plans: A field experiment. *Journal of Applied Psychology, 53*, 467-471.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297-1350). Chicago, IL: Rand McNally.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.
- Macy, B., & Mirvis, P. (1976). A methodology for assessment of quality of work life and organizational effectiveness in behavior-economic terms. *Administrative Science Quarterly, 21*, 212-226.
- Mahoney, T. A. (1988). Productivity defined: The relativity of efficiency, effectiveness, and change. In J. P. Campbell & R. J. Campbell (Eds.), *Productivity in organizations* (pp. 15-39). San Francisco: Jossey-Bass.
- March, J. G., & Simon, H. A. (1958). *Organizations*. New York: Wiley.
- Mobley, W. H., Griffeth, R. W., Hand, H. H., & Meglino, B. M. (1979). Review and conceptual analysis of the employee turnover process. *Psychological Bulletin, 86*(3), 493-522.
- Mowday, R. T., Porter, L. W., & Steers, R. M. (1982). *Employee-organizational linkages: The psychology of commitment, absenteeism, and turnover*. New York: Academic Press.

- Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior, 14*, 43-77.
- Mundel, M. E. (1982). Productivity measurement and improvement. In G. Salvendy (Ed.), *Handbook of industrial engineering*. (pp. 1.5.1-1.5.28). New York: Wiley.
- Naisbett, J. (1982). *Megatrends: Ten new directions transforming our lives*. New York: Warner Books.
- Nebeker, D. M. & Neuberger, B. M. (1985). Productivity improvement in a purchasing division: The impact of a performance contingent reward system, *Evaluation and Program Planning, 8*, 121-134.
- *Nebeker, D. M., & Tatum, B. C. (1996). *An approach to measurement of quality and productivity for gain sharing: Measuring total organizational value* (NPRDC-TN-96-33). San Diego: Navy Personnel Research and Development Center.
- **Nebeker, D. M., Tatum, C. B., & Wolosin, D. G. (1996). *Examples of white collar measurement using a typology of organizational effectiveness* (NPRDC-TN-96-30). San Diego: Navy Personnel Research and Development Center.
- Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw-Hill.
- Offerman, L. R., & Gowing, M. K. (1990). *Organizations of the future: Changes and challenges*. *American Psychologist, 45*, 95-108.
- Ostwald, P. F. (1982). Cost estimating. In G. Salvendy (Ed.), *Handbook of industrial engineering*. (pp. 9.2.1-9.2.28). New York, NY: Wiley.
- Paine, F. T. (1969). What do better college students want from their jobs? *Personnel Administration, 32*(2), 26-29.
- Porter, L. W., & Lawler, E. E., (1968). *Managerial attitudes and performance*. Homewood, IL: Irwin-Dorsey.
- Porter, L. W., & Miles, R. E. (1974). Motivation and management In J. W. McGuire (Ed.), *Contemporary management: Issues and viewpoints*. Englewood Cliffs, NJ: Prentice-Hall.
- Porter, L. W., & Steers, R. M. (1973). Organizational, work, and personal factors in employee turnover and absenteeism. *Psychological Bulletin, 80*, 151-176.
- Quinn, R., & Staines, G. (1979). *The 1977 Quality of Employment Survey: Descriptive statistics with comparison data from the 1969-70 and the 1972-73 surveys*. Ann Arbor: Institute for Social Research; University of Michigan.

*Found in Foreword.

**Found in Foreword and Summary.

- Rich, P. (1992). The organizational taxonomy: Definition and design. *Academy of Management Review, 17*, 758-781.
- Ringham, A. J. (1982, October). *Designing a gainsharing program to fit your operations*. Paper presented at the Gainsharing Conference sponsored by the Institute of Industrial Engineers. Washington, DC.
- Rummler, G. A., & Brache, A. P. (1991). Managing the white space. *Training, 28*(1), 55-70.
- Schmidt, F. L., Hunter, J. E., McKenzie, R. C., & Muldrow, T. W. (1979). Impact of valid selection procedures on work-force productivity. *Journal of Applied Psychology, 64*, 609-626.
- Schneider, B., & Schmitt, N. (1986). *Staffing organizations* (2nd ed.). Glenview, IL: Scott, Foresman & Co.
- Schuler, R. A. (1984). *Personnel and human resources management* (2nd ed.). St. Paul, MN: West.
- Schultz, D. P. (1982). *Psychology and industry today* (3rd ed.). New York, NY: Macmillan.
- Shewhart, W. A. (1931). *Economic control of quality of manufactured product*. New York: D. Van Nostrand Co., Inc.
- Smith, C., Kendall, L. M., & Hulin, C. L. (1969). *The measurement of satisfaction in work and retirement*. Chicago: Rand McNally.
- Steers, R. M., & Porter, L. W. (1987). *Motivation and work behavior* (4th ed.). New York: McGraw-Hill.
- Steers, R., & Rhodes, S. R. (1978). Major influences on employee attendance: A process model. *Journal of Applied Psychology, 63*, 391-407.
- *Tatum, B. C., Nebeker, D. M., & De Young, P. H. (1996). *Using performance indexing to measure organizational gains in white collar environments* (NPRDC-TN-96-27). San Diego: Navy Personnel Research and Development Center.
- *Tatum, B. C., Shaw, K. N., & Main, R. E. (1996). *Integrating measurement approaches in gain sharing and total quality* (NPRDC-TN-96-31). San Diego: Navy Personnel Research and Development Center.
- Turnage, J. J. (1990). The challenge of new workplace technology for psychology. *American Psychologist, 45*, 171-178.
- Vroom, V. H. (1964). *Work and motivation*. New York: Wiley.
- Warne, J. L. (1986). *Just-in-time production system: Facilitator guide*. Stamford, CT: Productivity, Inc.
- Wexley, K. N., & Latham, G. P. (1981). *Developing and training human resources in organizations*. Glenview, IL: Scott, Foresman.

Wheeler, D. S., & Chambers, D. S. (1992). *Understanding statistical process control* (2nd ed.). Knoxville, TN: SPC Press.

Wood, M., Rasmussen, J. E., & Lawler, E. E. (1975). *Federally sponsored research on the quality of working life: Planning, support, and products, 23*. Seattle, WA: Battelle Memorial Institute, Human Affairs Research Centers.

Distribution List

Office of the Under Secretary of Defense (P&R)
Defense Technical Information Center (DTIC) (4)