&EPA Total Quality Process (TQP)

Student Guide

Printed on Recycled Paper

TOTAL QUALITY PROCESS (TQP)

Student Guide

November 20, 1991
Revised
March 19, 1992

Contract No. 68-01-7437

Table of Contents

Student Guide

Module 0:
Introduction

MODULE 0: INTRODUCTION

Welcome

Welcome to this Total Quality Process (TQP) class for NDPD employees and contractors. We are glad that you are here!

During this class, you will have the opportunity to do the following:

- Obtain an understanding of total quality from the combined NDPD and Unisys viewpoint.

- Express your needs and concerns in a "safe" environment.

- Learn useful techniques that will help you in your daily work.

Introductions

Your instructor will give you an opportunity to introduce yourself and to answer two questions: "What do I need to get out of this class?" and "What is my greatest quality concern?".

For your own reference, record your answers to these questions in the space below.

1.   What do I need to get out of this class?

_____

_____

_____

2.   What is my greatest quality concern?

_____

_____

_____

Course Objectives

By the end of this course, you will be able to do the following:

- Explain the importance of quality within the NDPD contract.

- Define your customer/supplier relationships within the contract.

- Use the seven-step Total Quality Process (TQP) and supporting tools in solving actual quality problems.

- Develop a personal quality strategy to make a difference in your Circle of Influence.

AGENDA

Day 1   Module 0:   **Introduction**
- Course objectives
- Agenda
- Welcome and introductions
- Ground rules

              Module 1:   **The Importance of Quality**
- Quality defined
- Customers/supplier interdependence

              Module 2:   **The Cost of Quality**
- Profitability
- Customer reactions to quality deficiencies
- Cost of conformance
- Cost of nonconformance
- Rule of the Tens
- Changing the cost of quality
- Malcolm Baldrige Quality Award winners

Day 2   Module 3:   **Quality Assessment**
- Internal Individual Questionnaire
- Scoring and Interpreting Results

              Module 4:   **The Total Quality Process (TQP)**
- Common culture and language
- Corporate-wide metrics and measurements
- Education
- Communication and recognition
- Process ownership and dependencies
- Continuous improvement
- Management commitment

Day 3   Module 5:   **Practicing and Implementing TQP**
- TQP steps
- TQP tools

              Module 6:   **What Can I Do?**
- How to make a difference
- Defining your role

Ground Rules

In order for you to receive the most benefit from the class, some ground rules must be established.

CONFIDENTIALITY

Confidentiality is crucial to the success of the class. People must feel free to fully express themselves without the threat of retribution. Even something that is seemingly harmless to you, may be embarrassing to someone else when it is relayed outside of the class. Begin to build trust in the group by keeping all that is said within the confines of this class. Remember, "What you say here . . . let it stay here!" No exceptions!

HONESTY AND OPENNESS

To establish trust so we can really begin to solve problems, it is important that the class be conducted in an atmosphere of honesty and openness. We cannot begin to address issues and concerns if they are not voiced. Be open to new ideas and be willing to suspend judgment and criticism during the class?

PARTICIPANT TREATMENT

To maintain everyone's "comfort zone," all participants must be treated with dignity, trust, and respect. We are here to work as a team. There is no place for laughing or making fun of other people or their ideas or for putting people down. We can speak the truth while still leaving the person intact.

USE OF "TIME OUTS"

Because we will be discussing important concerns, the discussion may become heated. If it does, we will take a brief "time out" or break to let everyone calm down.

Total Quality Process Student Guide

Your <u>Total Quality Process (TQP) Student Guide</u> is written so you can easily follow the class activities. In topics where there is detailed information, it is supplied for you in the text, so you can concentrate on the class and not have to worry about getting everything down on paper. There also is sufficient space for you to take notes, if you desire to do so.

Module 1:
The Importance of Quality and the Quality Relationship

MODULE 1: THE IMPORTANCE OF QUALITY AND THE QUALITY RELATIONSHIP

Module Objectives

By the end of this module, you will be able to do the following:

- Clarify who your customers and suppliers are.

- Better understand your customer/supplier relationships.

- Define quality in the NDPD customer/supplier context.

- Develop strategies for establishing better customer/supplier relationships.

The Customer/Supplier Relationship

The customer/supplier relationship between NDPD employees and contractors is a unique one. To more fully understand this relationship, let's begin this module by defining what is meant by the terms "customer" and "supplier."

A customer
   is someone to whom a product or service is provided.

A supplier
   is someone who provides a product or a service.

Written Activity

Take a few minutes to answer the following questions about your customers/suppliers.

- Who are your customers/suppliers?

- What are your responsibilities to your customer/supplier, as you understand them?

- What are your customers'/suppliers' responsibilities to you, as you understand them?

- How would you describe your relationship with your customer/supplier?

- What would you like to change about that relationship?

What is Quality?

For the customer:

> **QUALITY is meeting the customer's needs and expectations.**

For the supplier:

> **QUALITY is clear communication of needs and expectations by the customer to the supplier.**

Customer's Needs

Are:

- Those items which are required for solving the customer's problems.

- Dynamic.

- As important for internal as for external customers.

Are Not:

- Limited to items specified by the customer.

- Necessarily consistent with the customer's expectations.

Previous class members have defined customer <u>needs</u> in the following ways:

"Quality, timely, cost effective, and consistent service." - George Kranich

"Follow through!" - Sandy Gill

"Our business is enabling our customers to use technology." - Charlie Webb

What are some of the needs of <u>your</u> customers?

_____

_____

_____

_____

_____

_____

Customer's Expectations Are:

- Conditioned by the marketplace and competition.

- Often not stated explicitly.

- Used to evaluate the final service or product.

- Often the basis of decisions about future dealings.

- Influenced by supplier's expert knowledge.

- As important for internal as for external customers.

What are some of your customers' expectations?

_____

_____

_____

_____

_____

_____

Supplier's Needs Are:

- That information which is necessary to know to meet the customer's needs and expectations. (Customer requirements.)

- As important for internal as for external suppliers.

- Requirements that are :

  1. Clear and specific.

  2. Communicated as early in the process as is feasible.

  3. Achievable, given the resources available.

  4. Not changed unnecessarily.

What are some of your suppliers' needs?

_____

_____

_____

_____

_____

_____ .

Supplier's Expectations Are:

That the customer:

1. Gives the information needed.

2. Trusts the supplier to do the job.

3. Empowers the supplier to make management decisions, be innovative, and take the initiative.

4. Is supportive of the supplier's efforts.

5. Gives the supplier the freedom to fail.

What are some of the expectations of your suppliers?

_____

_____

_____

_____

_____

What Really Matters

In the customer/supplier relationship, quality is built upon the **entire business transaction** between the customer and the supplier.

Therefore, the focus must be on **perfecting the relationship** as well as producing **total quality** in the tasks we do.

Quality activities must be based on **trust**. Without trust, quality results will be difficult to achieve, if not impossible.

Give people the freedom to fail.

_____

_____

_____.

Don't "shoot the messenger."

_____

_____

_____.

EXERCISE: Customer/Supplier Role Play

Your instructor will give you instructions and materials for the role play activities.

Space is provided on the following pages for taking notes on each role play.

Team 1 - Observer

As you watch the interaction between the customer and the supplier, make observations about the following points:

- How can "seeking first to understand" a difficult person rather than just reacting to their behavior help?

   _____
   _____
   _____
   _____.

- Are you currently involved in any win/lose or lose/lose scenarios? What are they like?

   _____
   _____
   _____
   _____.

- How can detachment help?

   _____
   _____
   _____
   _____.

- Why is negative behavior less productive and efficient in a business setting than treating people with dignity, trust, and respect?

   _____
   _____
   _____
   _____
   _____.

- What is the advantage in focusing on issues instead of personalities?

   _____
   _____
   _____
   _____
   _____.

Team 2 - Observer

As you watch the interaction between the customer and the supplier, make observations about the following points:

- How would you describe the <u>manager's</u> preferred method of giving and receiving information?

  _____
  _____
  _____
  _____
  _____.

- How does his or her <u>subordinate</u> like to give and receive information?

  _____
  _____
  _____
  _____
  _____.

- What is <u>your</u> preferred method of giving and receiving information?

  _____
  _____
  _____
  _____
  _____.

- Do you work with anyone whose preferred method of communication is different from yours? If so, what are you going to do to improve communication with that person?

  _____
  _____
  _____
  _____
  _____.

Team 3 - Observer

As you watch the interaction between the customer and the supplier, make observations about the following points:

- What do you think this manager finds irritating about this employee?

  _____
  _____
  _____
  _____
  _____.

- What does the employee find irritating about this manager?

  _____
  _____
  _____
  _____.

- How can <u>empowerment</u> help both the manager and the subordinate?

  _____
  _____
  _____
  _____.

Team 4 - Observer

As you watch the interaction between the customer and the supplier, make observations about the following points:

*   What is needed before these two contractors can really begin to work effectively together?

    _____
    _____
    _____
    _____
    _____
    _____
    _____.

*   Stephen Covey developed the concept of the <u>emotional bank account</u>. He says that people can begin to build thrust by making deposits to each other's emotional bank accounts in the following ways:

    1.   Risking to share information first.
    2.   Helping when they can.
    3.   Not manipulating the other person.
    4.   Not intentionally hurting the other person.

    What <u>specific</u> things could these contractors do to begin to build trust?

    _____
    _____
    _____
    _____
    _____
    _____
    _____.

Team 5 - Observer

As you watch the interaction between the customer and the supplier, make observations about the following points:

- What is this manager's project management style?

  _____
  _____
  _____
  _____
  _____.

- What is the subordinate's work style?

  _____
  _____
  _____
  _____
  _____.

- What would you suggest as a strategy for meeting both the manager's and the subordinate's needs so that a "win-win" situation is created?

  _____
  _____
  _____
  _____
  _____
  _____.

Conclusion

In today's increasingly competitive marketplace, it becomes more important than ever to maintain the quality of both our work and our working relationships. Both NDPD employees and contractors are facing leaner budgets and increasing organizational scrutiny. We all face the challenge or doing more with less. We need to be able to work more efficiently together.

We must continually seek ways to improve our service and the quality of our relationships. Good enough is never enough!

"We want to be the best that we can be in everything that we do." - Don Fulford.

We can achieve the best results when we work together as a <u>team</u>. By striving for excellence in the quality of our work and our customer/supplier working relationships, all of us at NDPD can be winners and enjoy working together!

Module 2:
The Cost of
Quality

MODULE 2: THE COST OF QUALITY

Module Objectives

By the end of this module, you will be able to do the following:

- Explain how the cost of quality impacts on profitability.

- Define the two aspects of the cost of quality: the cost of nonconformance and the cost of conformance.

- List the key messages that Malcolm Baldrige National Quality Award-winning companies said were instrumental to their success in increasing quality and reducing the price of nonconformance.

How Profitability Works

- There is a dual impact of quality on any organization:

    Top-Line Impact = <u>increased revenue</u>

    Bottom-Line Impact = <u>profits</u>

**"Quality is the one thing
that can attack both lines of profitability
to affect them favorably."**

NDPD Achievement

NDPD personnel can benefit from quality improvement in the following ways:

- Pride in a job well done.

- Annual Evaluations.

- Performance Awards.

- Agencywide recognition.

"We want to be the <u>best</u> of the best!"

Customers' Reaction to Poor Quality

- Customers pay more attention to _____ information than to _____ information.

- When we lose a customer, we lose financially in two ways:

  1. Lost _____ from that customer.

  2. Increased _____ in acquiring a new customer to replace the old one.

- It costs _____ to _____ times more in marketing costs to replace a new customer rather than to keep existing customers.

- When we lose a supplier, we lose in several ways because of the time involved to do the following:

  1. Get used to the way a new supplier does things.

  2. Develop _____ in the supplier.

  3. Learn how best to _____ with the supplier.

  Time that could be directed toward other activities must be spent in establishing the new supplier relationship.

What Does Quality Cost?

Cost of Conformance

Prevention

Inspection/
Assessment

Failures & Errors

Cost of Nonconformance
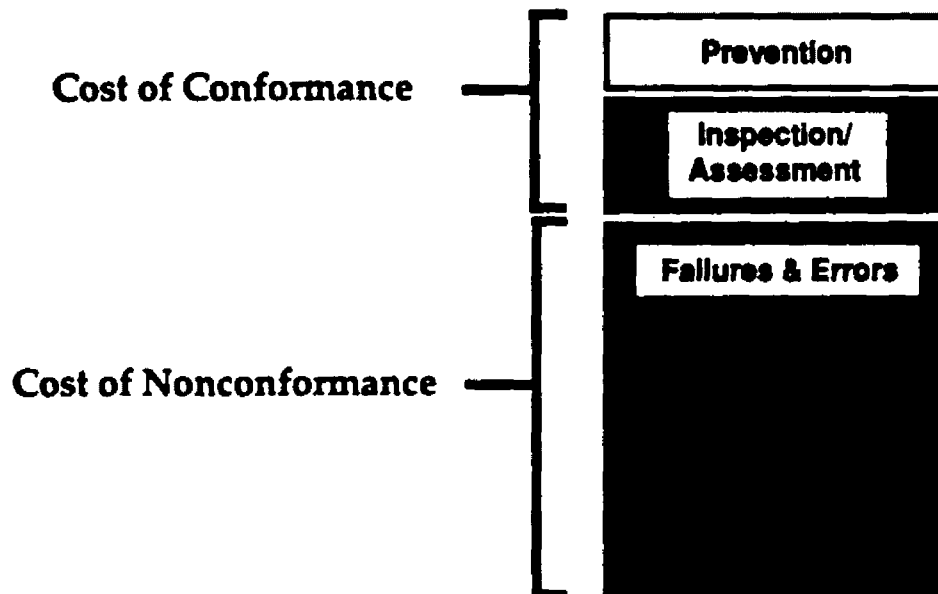
Cost of Quality: Conformance

The cost of conformance includes prevention and assessment.

PREVENTION

<u>Goal:</u> The goal of prevention is to make sure, in advance, that requirements are met and that things do not go wrong and errors do not occur.

<u>Cost:</u> Prevention requires an investment up front.

<u>General</u>   —   Clear understanding of customer's needs and expectations.
<u>Activities:</u>   —   Clear requirements.
                —   Clearly defined, written specifications.
                —   Well-defined, proven process.
                —   Procedures standardized, written, and followed as written.
                —   Ongoing communication with customer.
                —   Pre-Project Planning.
                —   Design of features/services to meet customers long-term as well as short-term goals.
                —   Supplier's ability to meet customer requests is communicated to customer.
                —   Process modifications negotiated with customer, where necessary.
                —   Use of higher quality components.
                —   Skilled, trained, experienced personnel.
                —   Training, skill development:
                —   Documentation content is agreed upon.
                —   Training courses and new processes are tested before being used.

<u>Your</u>   ·   _____
<u>Activities</u>   ·   _____
                ·   _____
                ·   _____
                ·   _____
                ·   _____
                ·   _____

<u>Results</u>   Errors and failures are prevented.

"An ounce of prevention is worth a pound of cure."

INSPECTION/ASSESSMENT

Goal: The goal of inspection/assessment is to discover errors so they can be corrected.

Cost: Cost is dependent on prevention. The fewer preventive measures we have taken, the more mistakes we will find, and the greater the cost.

General
Activities:
- Frequent customer feedback.
- Analyzing our delivery process.
- Meaningful inspection.
- Review of documentation and processes.
- Testing.
- Statistical process control, where applicable.
- Incoming inspection of externally supplied materials (e.g., training materials).
- In-process inspection.
- Surveys and evaluations of service and processes.

Your
Activities

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Results: Errors and failures are detected and corrected before the product or service is delivered to the customer.

"Design quality in instead of trying to inspect it in."

Cost of Quality: Nonconformance

The cost of nonconformance is the price you pay when a customer is or will be dissatisfied and you have to correct the problem. It is the price of not doing things right the first time. It includes fixing those failures and errors that were detected in the assessment phase and detected by the customers.

FAILURES/ERRORS

Goal: The goal is to fix errors and failures.

Cost: The further along the line a problem is allowed to go uncorrected, the more it costs. The "Rule of the Tens" applies. It states that you must multiply the cost of correcting the problem by 10 for every step away from the original design phase the correction is made.

General   —   Rework.
Activities: —   Design iterations.
            —   Last minute changes or additions.
            —   Unscheduled work impacts scheduled work.
            —   Increased hot-line calls.
            —   Additional customer contact costs (manpower, time, and money).
            —   Overtime.
            —   Additional support needed.

Your   ·   _____
Activities   ·   _____
            ·   _____
            ·   _____
            ·   _____
            ·   _____
            ·   _____
            ·   _____

Results: —   Reputation is damaged.
            —   Confidence is lost.
            —   Additional costs passed on to the customer.
            —   Dissatisfied customers tell others.
            —   Lose contract.

"Pay me now or pay me later."

Changing the Cost of Quality
Increasing Profitability by Decreasing COQ

**25% - 40%
of Revenue**

Prevention

Inspection/
Assessment

Failures & Errors

Investment

**Payback:
15% - 30%
of Revenue**
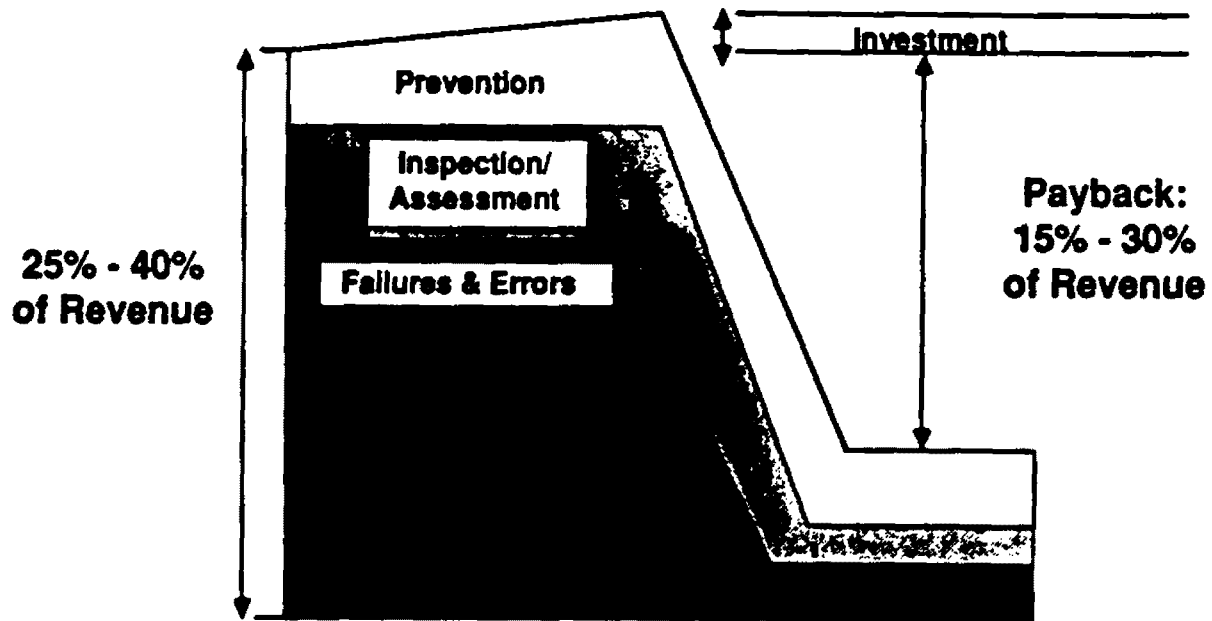
Malcolm Baldrige National Quality Award

WHAT IT IS

- The Malcolm Baldrige National Quality Award was created in 1987 in memory of the late Malcolm Baldrige, the Secretary of Commerce.

- It was started to encourage quality in American companies to make them more competitive with foreign companies.

- It is the highest quality award that an American company can win.

AWARD CRITERIA

Companies applying for this award are judged on the following criteria:

Leadership
>   Senior management's success in creating and sustaining a quality culture.

Information and Analysis
>   Effectiveness of the company's collection and analysis of information for quality improvement and planning.

Planning
>   Effectiveness of integration of quality requirements into the company's business plan.

Human Resource Utilization
>   Success of the company's efforts to utilize the full potential of the work force for quality.

Quality Assurance
>   Effectiveness of the company's systems for assuring quality control in all operations.

Quality Assurance Results
>   Company results in quality achievement and quality improvement, demonstrated through quantitative measures.

Customer Satisfaction
>   Effectiveness of the company's systems to determine customer requirements and demonstrate success in meeting them.

Malcolm Baldrige Award Video

As you watch the film, take notes on some of the key messages which were pivotal to the success of the award-winning companies.

Motorola:

_____

_____

Westinghouse:

_____

_____

Globe Metallurgical:

_____

_____

Milliken:

_____

_____

Xerox:

_____

_____

IBM (Rochester):

_____

_____

Cadillac:

_____

_____

Federal Express:

_____

_____

Wallace Company:

_____

_____

Exercise: Destroy the NDPD and Unisys Financially

Generate a list of what you or your organization could do to destroy the NDPD and its contractors financially.

- You will have 15 minutes.

- Write your ideas on a blank transparency.

- Keep these points in mind:

    1.   Be sure to include both NDPD and its contractors.

    2.   Consider internal and external customer and supplier roles.

    3.   Think of anything that will increase quality costs.

- This exercise utilizes contingency brainstorming. Contingency brainstorming is _____
  _____

- Why can looking at the negatives be so effective?
  _____
  _____
  _____
  _____.

Conclusion

- We can reduce the cost of quality most effectively through preventive measures.

- The earlier in a process that we fix a problem, the less expensive it is. (Rule of the Tens.)

- We can increase our quality and reduce costs by following the examples of the Malcolm Baldrige National Quality Award winning companies.

Module 3:
Quality Assessment

MODULE 3: QUALITY ASSESSMENT

Module Objectives

By the end of this module, you will be able to do the following:

- Summarize the results of the <u>Total Quality Process (TQP) Pre-Course Questionnaire</u> responses from your colleagues.

- Compare your perceptions of your quality-related behavior with the perceptions of your colleagues.

- Use the "SARAH" model to deal with negative feedback.

- Use the questionnaire results as a baseline to determine your progress in achieving the quality-related behaviors embodied in the Total Quality Process.

- The results of the questionnaire can also help you identify areas in which you need to focus your quality improvement efforts.

Total Quality Process (TQP) Pre-Course Questionnaire

The questionnaire measures the following quality perceptions:

- Continuous improvement.

- Common quality culture.

- Measurement.

- Education.

- Process ownership.

- Communication.

- Commitment.

Keep these points in mind as we review the questionnaires:

- The purpose of the questionnaire is not to determine whether you are a "good" or a "bad" employee.

- The questionnaire measures some broad categories of quality-related behaviors based on the perceptions of colleagues.

- The questionnaire categories are designed to align with the elements of the Total Quality Process (TQP), which we will be covering in detail in Module 4.

- The elements of TQP apply to both customers and suppliers.

- This questionnaire provides a <u>baseline</u> measure.

- You can measure your progress against this baseline measure.

The "SARAH" Model

Why was the SARAH model developed?

_____

_____
_____

_____

S

A

R

A

H

Questionnaire Summary Sheet

You will summarize the results of the questionnaire responses on this sheet.

Questionnaire Summary Sheet

Instructions:
Transfer the total number of "a"s only from each of the five **Questionnaire Answer Sheets** to the **Individual Questionnaire Scores** spaces provided for each **Category**.
For each category, add the individual scores and divide by number of questionnaires recorded.
Enter the result in the space headed **Ave. Org. Score**.
Transfer the total number of "a"s only from the **Questionnaire Answer Sheet** completed by you to the space provided for each category in the column headed **Your Score**.

Category	Individual Questionnaire Scores					Ave. Org. Score	Your Score
	1	2	3	4	5		
I - Continuous improvement							
II - Common quality culture							
III - Measurement							
IV - Education							
V - Process ownership							
VI - Communication							
VII - Management commitment							
VIII - Leadership							

Guidelines for Interpreting the Results/Conclusion

- A difference of _____ or more between your score and the average of the others indicates a significant difference in perception.

- If your score is _____ , you are perceived as being more advanced in application of quality practices that you perceive.

- If your score is _____ , you may not be making your quality efforts visible, thus limiting your effectiveness as a role model.

- Examine any significant gaps to determine if they represent reality or misconception.

- If the response is reality, then change your actions to alter the reality.

- If the response is a misconception, then alter the perception.

- If you see _____ in responses, you may be sending inconsistent responses to those around you.

- Remember that this assessment will serve as a _____ against which you can measure your improvement as you begin to apply the principles of the Total Quality Process to your everyday operations.

Module 4:
The Total Quality
Process (TQP)

MODULE 4: THE TOTAL QUALITY PROCESS (TQP)

Module Objectives

By the end of this module, you will be able to describe the basic elements of the Total Quality Process (TQP):

- Management Commitment

- Common Culture and Language

- Meaningful Measurements

- Education

- Communication and Recognition

- Process Ownership and Dependencies

- Continuous Improvement

Total Quality Process (TQP) Overview

Management Commitment

Common Culture and Language

Meaningful Measurements

Education

Communication and Recognition

Process Ownership and Dependencies

Continuous Improvement

Management Commitment

What would you consider to be the characteristics of a "quality" manager/leader -
a manager/leader who does his job in a quality fashion?

-

-

-

-

-

-

-

If you are in management, which characteristics do you need to improve?

_____

_____

What can you do to help and support your own manager in attaining the
characteristics of a quality manager?

_____

_____

What help do you need from your employer to achieve these objectives?

_____

_____

Why Do We Need Management Commitment?

- Management controls the _____ to processes used and the resources.

- Employees will modify their behavior only as a result of management _____ , not words.

- Although quality is everyone's responsibility, we need _____ _____ to make the process work.

The Growth of
Management's
Commitment to
Quality

Quality Behavior

Personal Involvement

Understand Concepts

Support Quality Activities
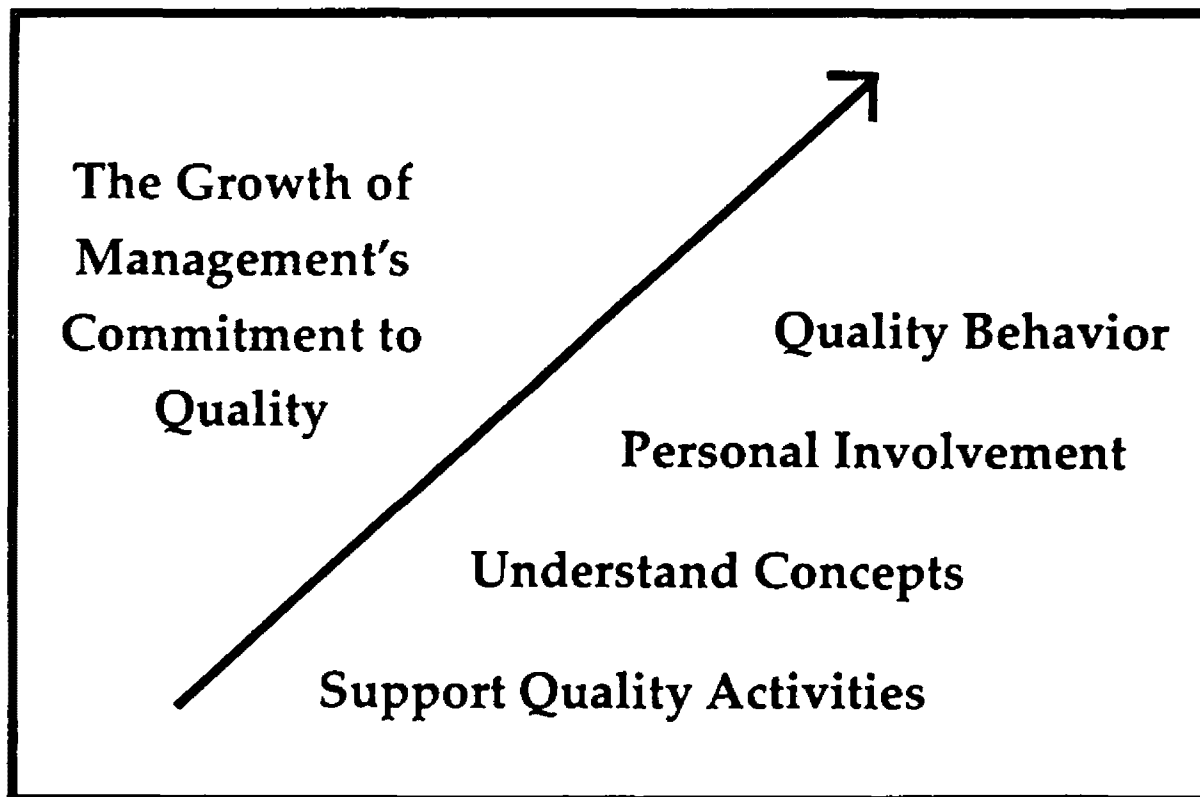
An example of management commitment:

_____
_____
_____

Common Quality Culture and Language

Generally speaking, culture can be defined as the basic **beliefs, expectations** (both formal and informal), and **behaviors** of a group of people.

In a business context, these beliefs, expectations, and behaviors are **driven by leadership behavior** and intended to **guide employees' day-to-day actions** within the organization.

When we speak of a quality culture, it can include the **language (definitions and terms)** we use to talk about quality and the **policies and procedures** that are used to set the minimum level of quality for all activities, products, and services.

What are some of the <u>beliefs</u>, <u>expectations</u>, and <u>behaviors</u> (the culture) here at NDPD?

BELIEFS	EXPECTATIONS	BEHAVIORS

Why Do We Need a Common Quality Culture?

1.   To "speak the same language," so we can communicate effectively with each other on quality topics.

2.   To direct our energies toward activities which most benefit the organizational quality goals.

3.   To prioritize our efforts in accordance with our common quality values.

4.   To achieve a synergy of efforts in which the sum of our efforts is greater than the individual efforts.

      (Synergy means that the combined efforts of the parts is greater than the individual parts would be able to produce by themselves.)

TQP Quality Culture Origins

	Deming	Juran	Crosby	Taguchi	Covey	TQP
Belief	System must change	Work within the system	Commitment	Lower cost is the driving force behind higher quality	Principle-Centered Management	Quality in everything we do
Goal	Continuous improvement	Projects for improvement	Zero defects	Design quality into product	Win-Win Situations	Total Customer Satisfaction
Method	14 principles	8 break-through steps	14-step quality improvement program	Reduce variation around target	7 Habits	Unisys total quality process
Emphasis	Process	Project	Results	Product/process optimization	Inner mastery for outer success	Continuous improvement
Quality Definition	Customer will define quality	Fitness for use	Conformance to customer requirements	The loss a product causes to society after being shipped	Living in conformance to your value system	Meeting customer needs and expectations
Quality Cost	Unknown	Cost of Poor Quality	Cost of quality	Quality loss function	Quality relationships impact positively	Quality improvement reduces cost

How Do We Bring About a Cultural Change?

1.   If we are to switch from our current cultural value system to one that better supports quality efforts, what must we do?

2.   What happens when everyone sets separate objectives?
      (Example: Marching Band)

3.   Why do people tend to resist change, even when it is for the better?

"Remember that it takes **time** *to make a cultural change."*

Meaningful Measurements

We need measurements to:

1.   Evaluate how well we are currently doing. (Baseline Measurement)

2.   Track our improvement. (Results Measurement)

3.   Enable us to make data-based decisions.

4.   Set meaningful goals.

Why do you think developing measurements in a service environment is so challenging?

•

•

•

•

•

•

•

•

•

•

Fundamentals of Measurement

The following fundamentals of measurement work for both service and production environments:

1.   Keep it simple.

2.   Determine what the end goal or composite result should be.

3.   Establish a baseline.

4.   Use action-oriented measures.

5.   Identify items or activities that do not conform to your customer's needs and expectations.

6.   Have clear priorities.

7.   Select meaningful measures.

8.   Measure what is pertinent.

9.   Look for frequent performance problems.

Education

- Education has a special role in the Total Quality Process. It serves as a means to do the following:

    - <u>Communicate</u> the common quality culture and language.

    - <u>Empower</u> employees by giving them methods and tools with which to implement the Total Quality Process and to do their jobs more efficiently.

    - <u>Develop</u> teamwork in quality improvement exercises.

"The significant problems that we face today cannot be solved at the same level of thinking that created them."

- Albert E. Einstein

- Education enables us to <u>work "smarter"</u>.

- <u>Everyone</u> can be a <u>quality educator</u>.

"Insanity is doing the same thing you have always done, but expecting different results."

- Anonymous

- Education can give us the tools and the processes to do things better.

Communication and Recognition

Why are communications and recognition <u>so important</u> to our total quality effort?

What kinds of communication and recognition would be <u>most meaningful to you</u>? To your peers?

What is a Process?

Formal Definition	A series of steps to transform input(s) to output(s) (with input or output being information, product, or service).
Informal Definition	The steps used to perform work.

Some terms commonly used to indicate processes are:

- System

- Method

- Procedure

- Technique

What are some processes in which you are involved every day?

_____

_____

_____

_____

"Everything that we do is part of a process."

Identifying a Process
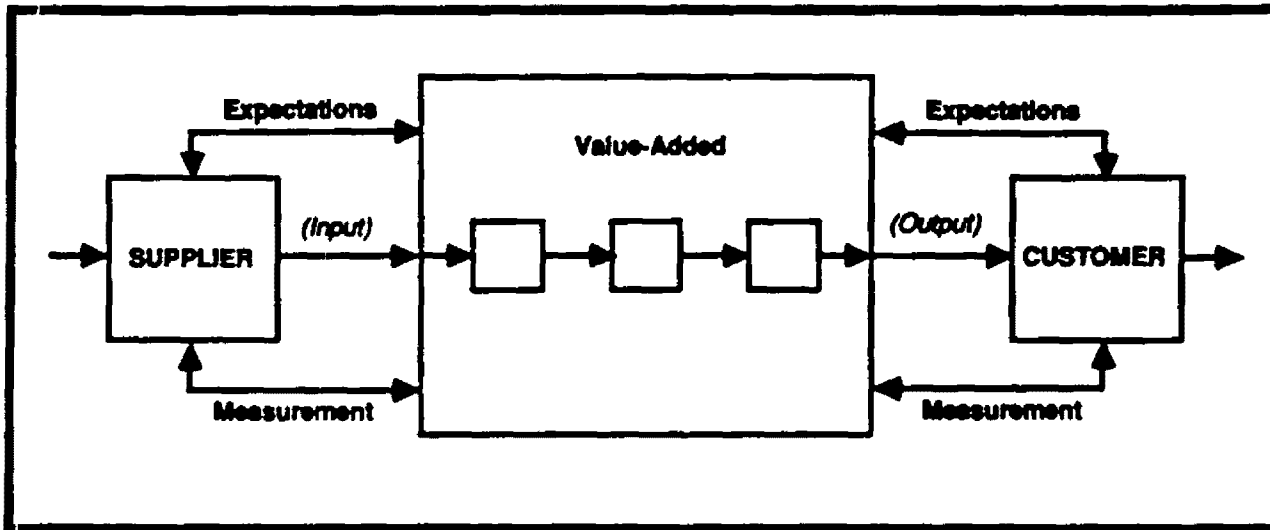
Identifying a process helps us to perform the following functions:

1.   Identify customer needs and expectations.

2.   Establish common metrics for the supplier and the customer to measure output.

3.   Identify problems as soon as possible after their occurrence by monitoring the output of subprocesses.

4.   Communicate what is learned from each problem so the knowledge can be shared with others encountering similar problems.

5.   Take immediate action to identify and modify the "root cause" of the problem.

Process Example: Teaching a Class

The following figure teaches the process for teaching a class.
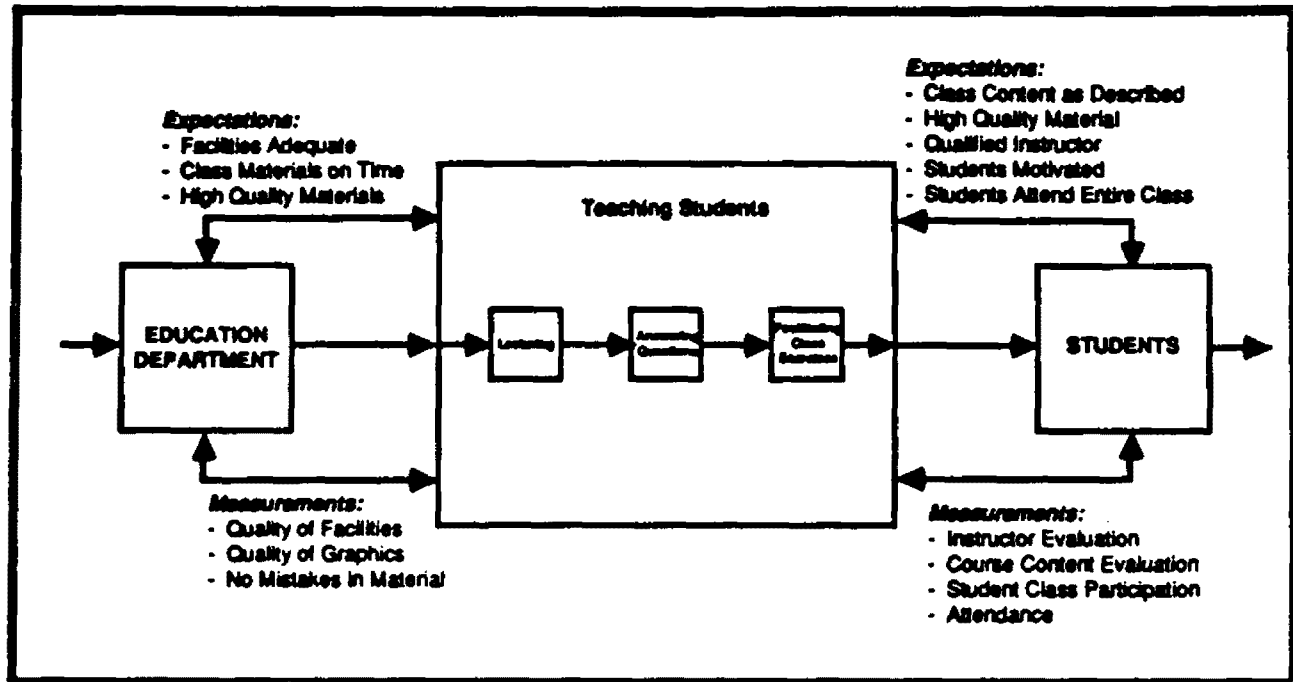
If expectations are known by both the customer and the supplier at each interface and if measurements are established, it is possible to track the effectiveness of the process and improve it.

It is possible to track the effectiveness of a process and improve it if the following are true:

- Expectations are known by the customer and the supplier at each interface.

- Measurements are established.

What is Process Ownership?

_____
_____
_____
_____
_____
_____.

ADVANTAGES: PROCESS OWNERSHIP	DISADVANTAGES: NON-PROCESS OWNERSHIP

Why is Process Ownership Needed?

- To <u>understand</u> the process.

- To <u>focus responsibility</u> for the process.

- To <u>empower</u> someone to make necessary changes in the process.

Typical Process Problems

Following are some typical process problems:

- Total Process Not Defined

    Example:

- Process Owner Not Identified

    Example:

- Subprocesses Optimized Instead of Total Process

    Example:

- Process Not Measured

    Example:

Exercise: Improving Total Quality Process Elements In Your Organization

In your organization, how could you improve the following Total Quality Process elements?

Management Commitment

Common Quality Culture

Measurement

Quality Education

Quality Communications and Recognition

Process Ownership

Continuous Improvement

- The "working" part of the Total Quality Process.

- Utilizes the environment created by all the other elements to provide improvement of systems and services in the advancement of quality.

- Essential to attaining a competitive edge.

"If we are not improving, we are falling behind the competition."

Seven Steps to Continuous Improvement

1
Identify
Customer/Supplier
Relationships

2
Determine
Customer
Needs/Expectations

3
Define
Work
Process

4
Identify
Candidate
Process Change

5
Implement
Change in a
Controlled Environment

6
Evaluate
Effects of
Change

7
Change
Process Permanently
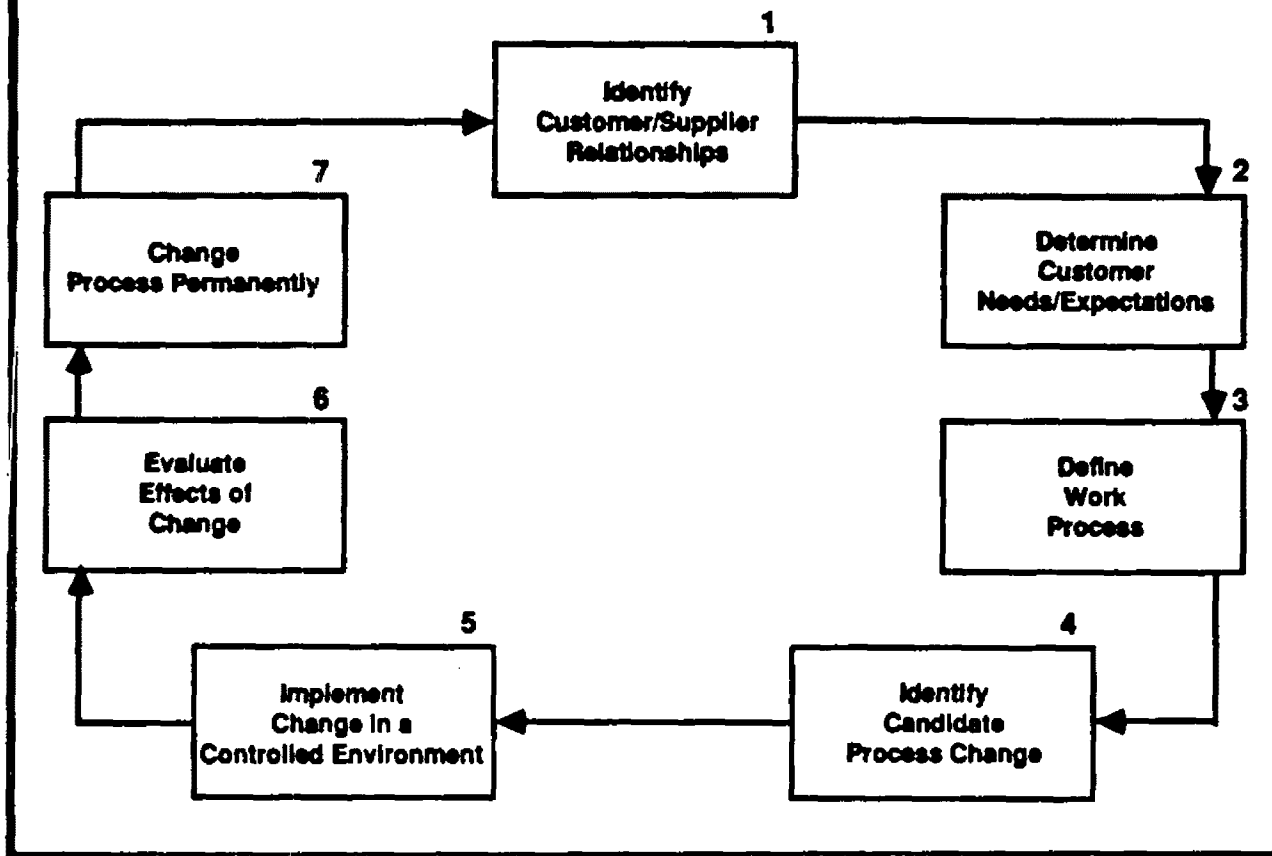
NOTE: *People have a tendency to want to skip the first three steps and go directly to solving*
a problem..

Make sure that you do __all__ the steps.

Conclusion

- **MANAGEMENT COMMITMENT** is the leadership, support, and consistency of action which drives the quality process.

- **A COMMON CULTURE AND LANGUAGE** is necessary to provide a consistent way of looking at quality throughout the site.

- **MEASUREMENTS** that are meaningful to our environment and which are true indicators of the quality of work that we are doing must be used.

- **EDUCATION** is the main means of transferring the values, methods, and tools of the Total Quality Process.

- **COMMUNICATION AND RECOGNITION** communicates our quality values and rewards individual and team efforts.

- **PROCESS OWNERSHIP** and recognition of **PROCESS DEPENDENCIES** effectively integrate all processes and cross-functional efforts.

- We must **CONTINUALLY IMPROVE** what we do to meet the customer's expectations better.

"Good enough is never enough!

Quality is a race without a finish line".

Module 5:
Practicing and Implementing the Total Quality Process (TQP)

MODULE 5: PRACTICING AND IMPLEMENTING THE TOTAL QUALITY PROCESS (TQP)

Module Objectives

By the end of this module, you will be able to do the following:

- Follow the seven steps of the Total Quality Process.

- Use the following Total Quality Process tools:

    - Brainstorming

    - Progressive Elimination Process (PEP)

    - Affinity Diagram

    - Selection Matrix

    - Root Cause Analysis

    - Flowcharts

    - Force Field Analysis

    - Fishbone Diagram

    - Pareto Diagram

    - Trend Chart

- Use the Total Quality Process steps and tools to begin solving an actual quality problem.

Total Quality Process Steps and Tools

<u>Pre-Process selection and prioritization of quality improvement issues</u>

<u>Tools</u>:   Brainstorming
              Progressive Elimination Process (PEP)
              Affinity Diagrams
              Selection Matrix
              Root Cause Analysis (Causal Chain)

Step 1 - <u>Identify customer/supplier relationships</u>

Step 2 - <u>Determine customer needs and expectations</u>

Step 3 - <u>Define the work process</u>

<u>Tool</u>: Flowcharts

Step 4 - <u>Identify candidate process change</u>

<u>Tools</u>:   Force Field Analysis
              Fishbone Diagrams
              Pareto Diagrams

Step 5 - <u>Implement change in a controlled environment</u>

Step 6 - <u>Evaluate effects of change</u>

<u>Tool</u>:   Trend Chart

Step 7 - <u>Change process permanently</u>

<u>Tool</u>:   Action Plan

Select and Prioritize Quality Improvement Issues

Keep the following points in mind when selecting and prioritizing quality improvement issues:

- Do not jump in and try to solve the problem right away.

- Agree on boundaries.

- Segregate symptoms (effects) from real problems.

- Combine similar or connected problems.

- Narrow the list to the few most important problems.

- Select the most important problem, based on feasibility, impact, and urgency criteria.

Brainstorming

Purpose

- To generate a list of ideas about an issue.

- To permit open expression of ideas without fear of criticism.

Process

- Decide on topic.

- Each member offers an idea about the topic.

- Record responses on a flip chart or in post-it notes.

- Continue the process until responses slow down.

- Discuss and clarify issues on the list.
  - Remove redundant issues.
  - Look for issues that can be combined.

Guidelines

- Before you begin
  - Make sure no non-team members are present.
  - Limit time for input (10 to 20 minutes).

- Getting responses
  - One suggestion at a time per person.
  - OK to pass when you do not have an idea.
  - Ideas offered only when it is your turn. (Write down ideas between turns.)
  - Non-critical atmosphere.
  - Build on the ideas of others.
  - Keep pace quick.
  - Move on when ideas slow down.

Variation

- Contingency brainstorming.

Progressive Elimination Process (PEP)

Purpose

- Select a few items for consideration when there are many items to be considered.

Process

- Consider the feasibility, impact, and urgency of each item.

- Select three items which you would rate highest based on a combination of the three criteria.

- Have each voter write down their three choices.

- Select the five items that have the highest number of votes for further analysis using the Affinity Program.

Guidelines

- If there are over 30 items on the list, give voters a number of votes equal to 10% of the total number of items.

- Have each voter write down their three choices prior to voting (to avoid the "bandwagon" effect).

- Voters can vote for individual items or distribute their votes any way they want.

- Use this tool when you have a large list of items.

Affinity Diagram

Purpose

- To group ideas.

Process

- Write each idea on a self-adhesive note.

- Spread notes on table.

- Group similar ideas together.

- After three minutes are up, discuss groupings and develop titles for groups.

- Eliminate obvious duplications.

Guidelines

- Give the participants three minutes to group the ideas.

- No talking is permitted while ideas are being grouped.

- Make sure everyone knows the procedure being followed.

- Do not permit one person to dominate.

- Keep the group titles in the language of the original problem.

Selection Matrix

Purpose

- Another means of narrowing down items generated from a brainstorming list to the most important items.

Process

- List brainstormed items on a "Selection Matrix" form.
- Determine your rating criteria (i.e., feasibility, impact, urgency, cost, etc.).
- Rate each item (1 - 10, with 1 being low).
- Determine ranking.
- Select highest priority items for action.

Guidelines

- Develop and define rating criteria which are meaningful to your situation.

Selection Matrix

Goal or Problem Statement: _____

Proposed Project/Change Description	Feasibility	Impact	Urgency	Rank

Exercise: Vacation Choice

Time: 7 days, 6 nights

Funds: $3,000 per person

Choices:

- Maui, Hawaii   - Lizard Lick, NC   - Washington, DC
- Vale, Colorado   - Cape Hatteras, NC   - Disney World, Florida

Selection Matrix
Goal or Problem Statement: _____

_____

Proposed Project/Change Description	Feasibility	Impact	Urgency	Rank

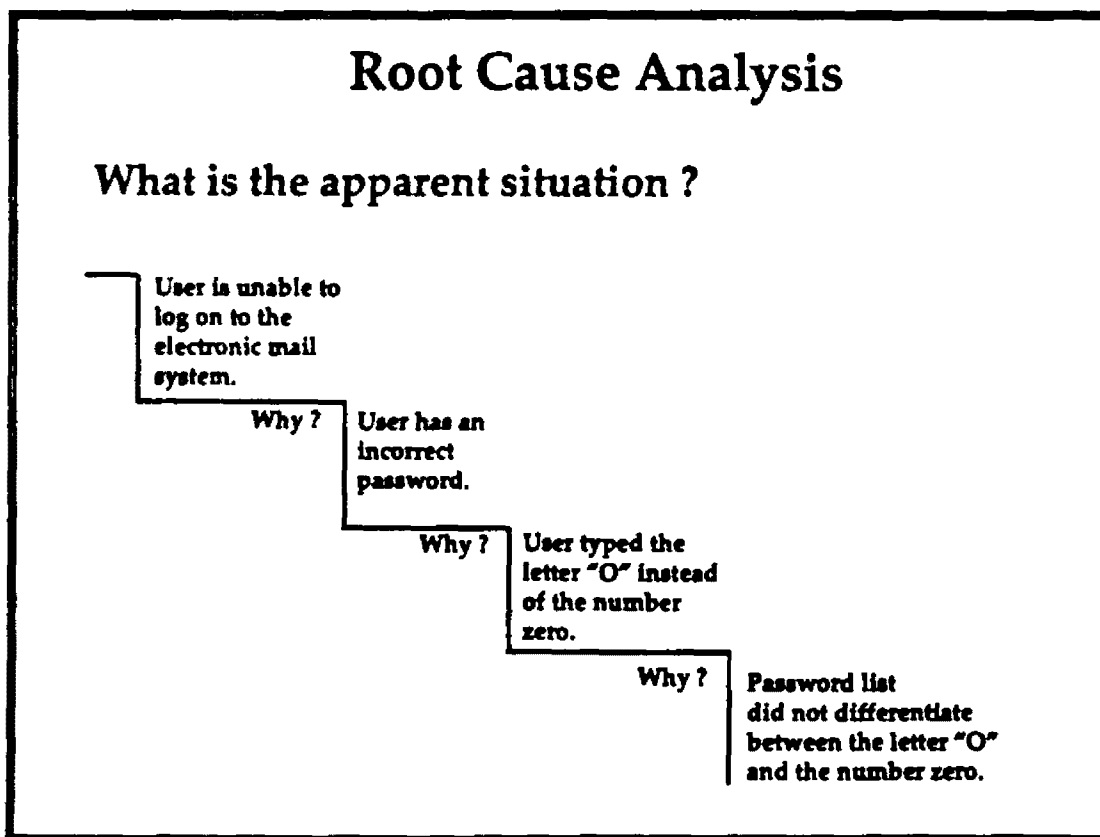# Root Cause Analysis (The "Why" Technique)

Purpose

- To get to the root cause of a problem.

Process

- Select a single item from the list of problems.
- Ask "Why?" until the root cause is found.

Guidelines

- Remember that items may have multiple causes. The most common mistake is thinking that there is a simple solution to a complex problem.
- Create separate chains when needed.
- Multiple items may have the same cause.
- Do not jump the steps in the chain.
- Fixing one problem may help solve other problems.

Root Cause Analysis

What is the apparent situation ?

User is unable to log on to the electronic mail system.

Why ? User has an incorrect password.

Why ? User typed the letter "O" instead of the number zero.

Why ? Password list did not differentiate between the letter "O" and the number zero.

Step 1: Identify Customer/Supplier Relationships

- Who are your customers?

- Are they internal or external or both?

- What service or product do you provide to your customer as their supplier?

- Does everyone involved have a common understanding of the customer/supplier relationships?

Step 2: Determine Customer Needs and Expectations

- Think of the customer/supplier relationship as a _____. The supplier can best meet the customer's needs and expectations if the customer gives them the clearest requirements possible. **Customers need to talk and suppliers need to listen!**

- Develop a common _____ of customer needs and expectations.

- Try to think like your customer/supplier.

- Share _____.

- Establish _____.

- Develop an attitude of _____.

- *"Seek first to understand and then to be understood."* - Stephen Covey

- Ask your customers these key questions:

  1. What do you need from me?

  2. Are there any gaps between what I give you and what you need?

  3. What do you do with what I give you?

- Try to determine the _____ needs and expectations that are not stated.

Step 3: Define the Work Process

- Before you can make meaningful changes to a process, you must first thoroughly understand it as it currently exists.

- Establish the sequential flow of tasks.

- Identify all inputs and outputs and where they occur.

- Reexamine the customer/supplier relationships. Have any new customers or suppliers been identified since the process has been defined?

- Determine how the process can be measured.

  - What are the relevant, meaningful, and measurable things about the process that indicate how well the process is working?

  - What will our definition of success or improvement be?

- Collect current data as a baseline of how well the current process performs.

Flowchart

Purpose
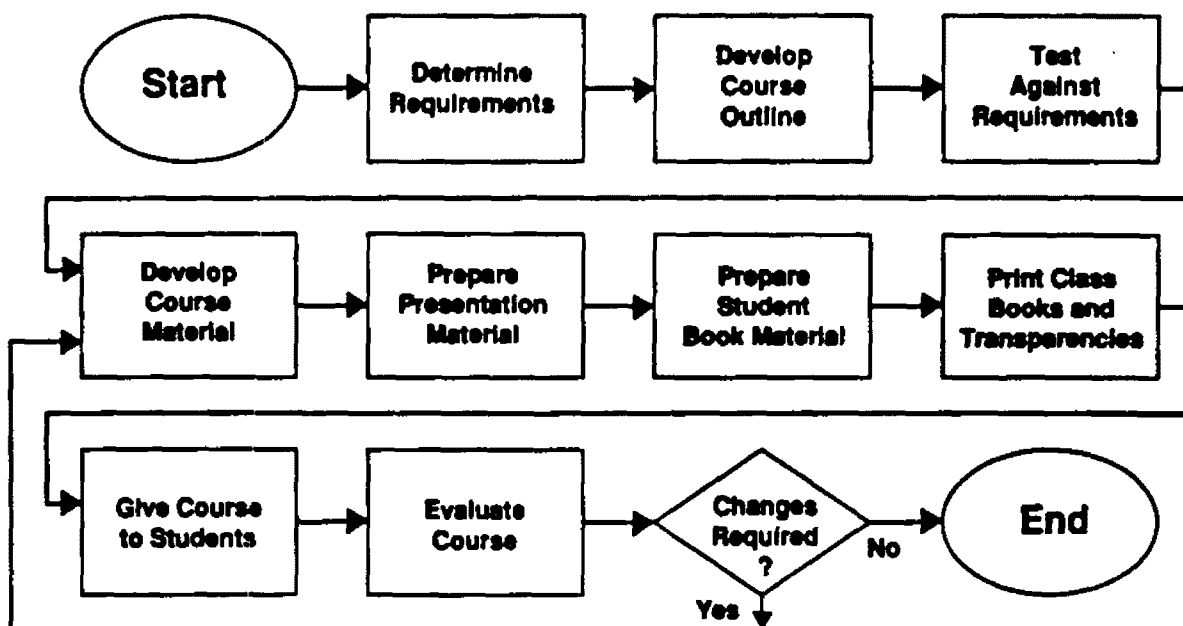- To use symbols to depict the steps of a work process.

Process
- Gather a group of people who represent the various parts of the process.
- Decide where the process begins and ends.
- Brainstorm the main activities and decision points in the process.
- Arrange these activities and decision points in the proper order, using arrows to show the direction of the flow of the process.
- Break down complex activities to show their component parts.
- Review the process flow to insure accuracy and completeness in describing the process.

Guidelines
- Try to include all customers and suppliers, if possible.
- Write these activities and decision points on post-its to make it easier to rearrange them.

Flow Chart for Developing the Email Course

Start → Determine Requirements → Develop Course Outline → Test Against Requirements

Develop Course Material → Prepare Presentation Material → Prepare Student Book Material → Print Class Books and Transparencies

Give Course to Students → Evaluate Course → Changes Required? → No → End
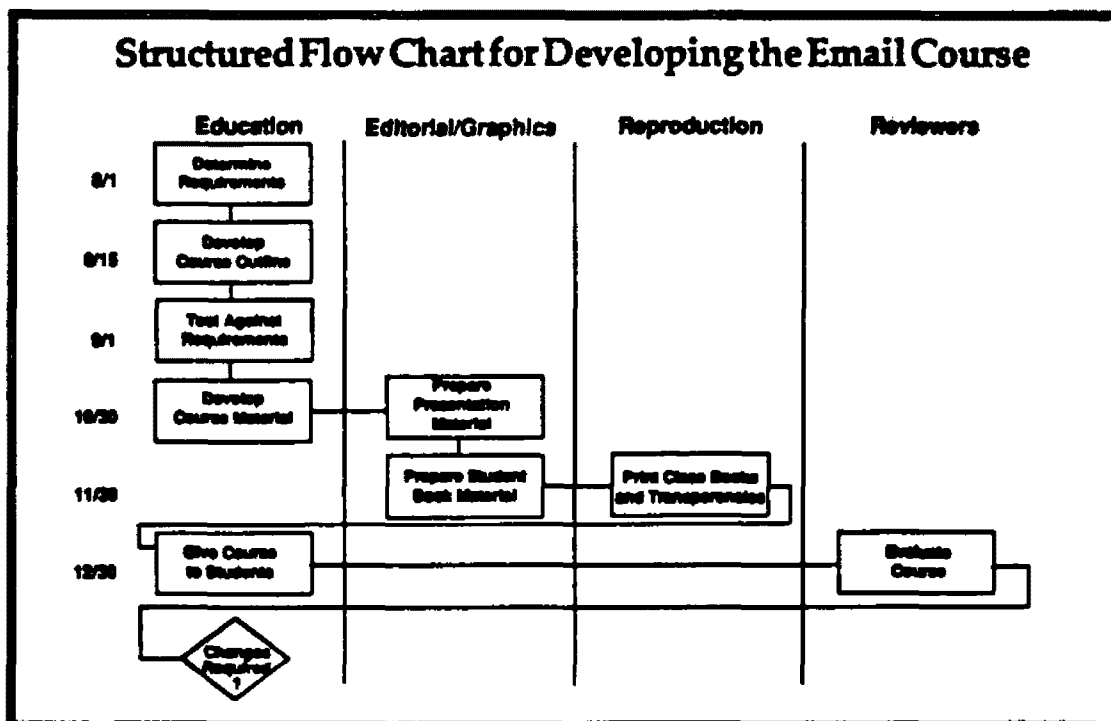
Yes

Structured Flowchart

Purpose
- Graphically represents a process to make it easier to understand.
- A means of defining the work process.
- Identifies major activities.
- Identifies relationships with suppliers and customers.

Process
- Determine which process you want to graphically represent.
- Determine how many different areas of responsibility you want to represent.
- Put headings on each column to identify responsible people, work groups, organizations, etc.
- Brainstorm for activities and decision points.
- Arrange process steps into proper order in the categories.
- Indicate flow of control and decision points.

Guidelines
- Get input from all participants in the process (customers and suppliers).
- Break down complex activities into their component parts.

Structured Flow Chart for Developing the Email Course

Education	Editorial/Graphics	Reproduction	Reviewers

Step 4: Identify Candidate Process for Change

- Analyze data from current process.

- Identify and prioritize problem areas.

- Determine causes of problems.

- Identify and prioritize potential process improvements.

- Apply the "Rule of Tens."

- Plan change implementation and verification:

  - Identify measurements needed and how to collect them.

  - If measurements are different from those identified on original process, you may have to go back and collect additional data on that process.

- Establish a goal for the effects of change.

  - If the goal is not met, try again.

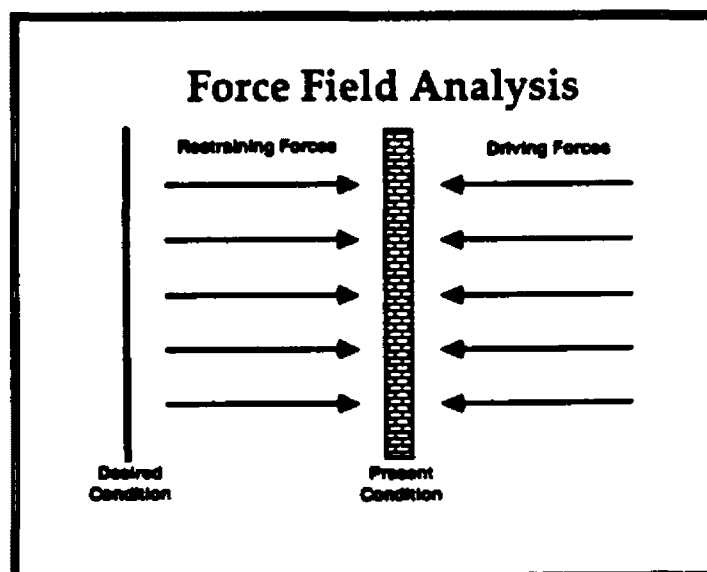- Focus on prevention and root causes.

Force Field Analysis

Purpose
- To generate a list of driving forces and restraining forces.
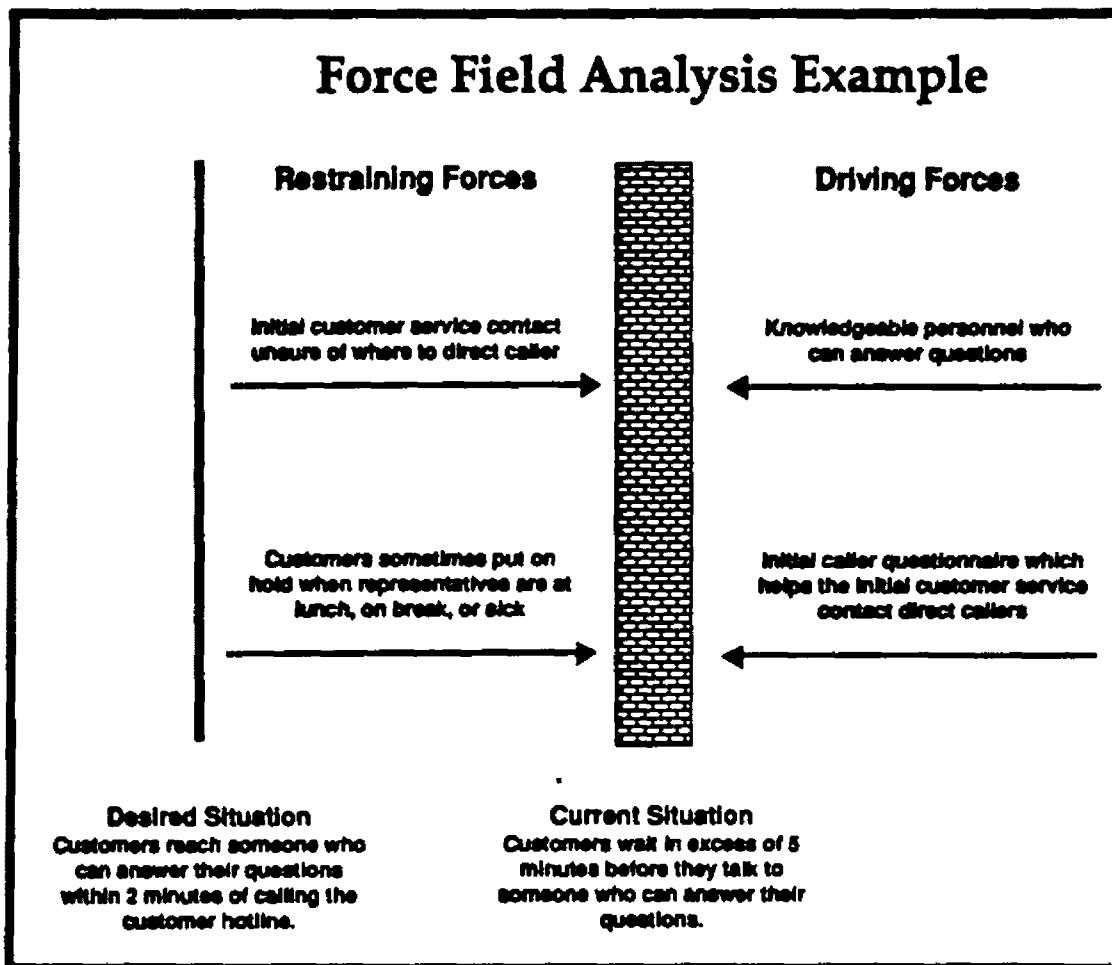- Identify means of changing the balance between the restraining and driving forces.

Process
- Draw a Force Field Analysis chart.
- Write a description of the current situation at the bottom of the "brick wall."
- Write a description of the desired situation at the bottom of the left-hand margin line.
- Brainstorm to generate a list of driving forces.
- Discuss ideas for altering selected factors to increase chances of success.
- Prioritize the factors in the order of impact in restraining or driving toward the desired results.
- Brainstorm for ways of altering the high-priority factors, creating a problem solution statement.
- Evaluate the solution as to its viability.
- If the solution is viable, make a list of action items to alter the forces. If not, develop another solution.

Guidelines
- It is easier to change restraining forces.
- When driving forces are increased, people may feel pushed and resist change.
- If stuck, use negative approach.

Force Field Analysis

Restraining Forces   Driving Forces

Desired   Present
Condition   Condition

Force Field Analysis Example

Restraining Forces   **Driving Forces**

Initial customer service contact
unsure of where to direct caller

Knowledgeable personnel who
can answer questions

Customers sometimes put on
hold when representatives are at
lunch, on break, or sick

Initial caller questionnaire which
helps the initial customer service
contact direct callers

Desired Situation
Customers reach someone who
can answer their questions
within 2 minutes of calling the
customer hotline.

Current Situation
Customers wait in excess of 5
minutes before they talk to
someone who can answer their
questions.

Fishbone Diagram (Also known as the Cause and Effect Diagram)
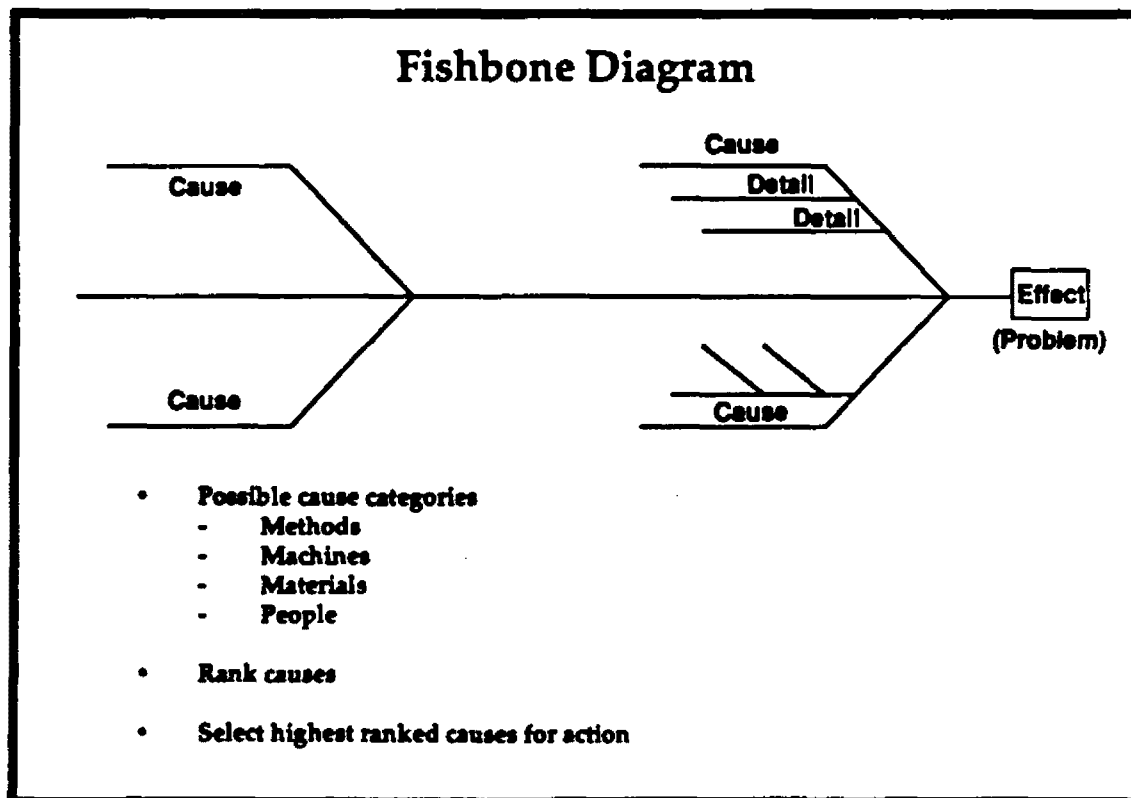
Purpose
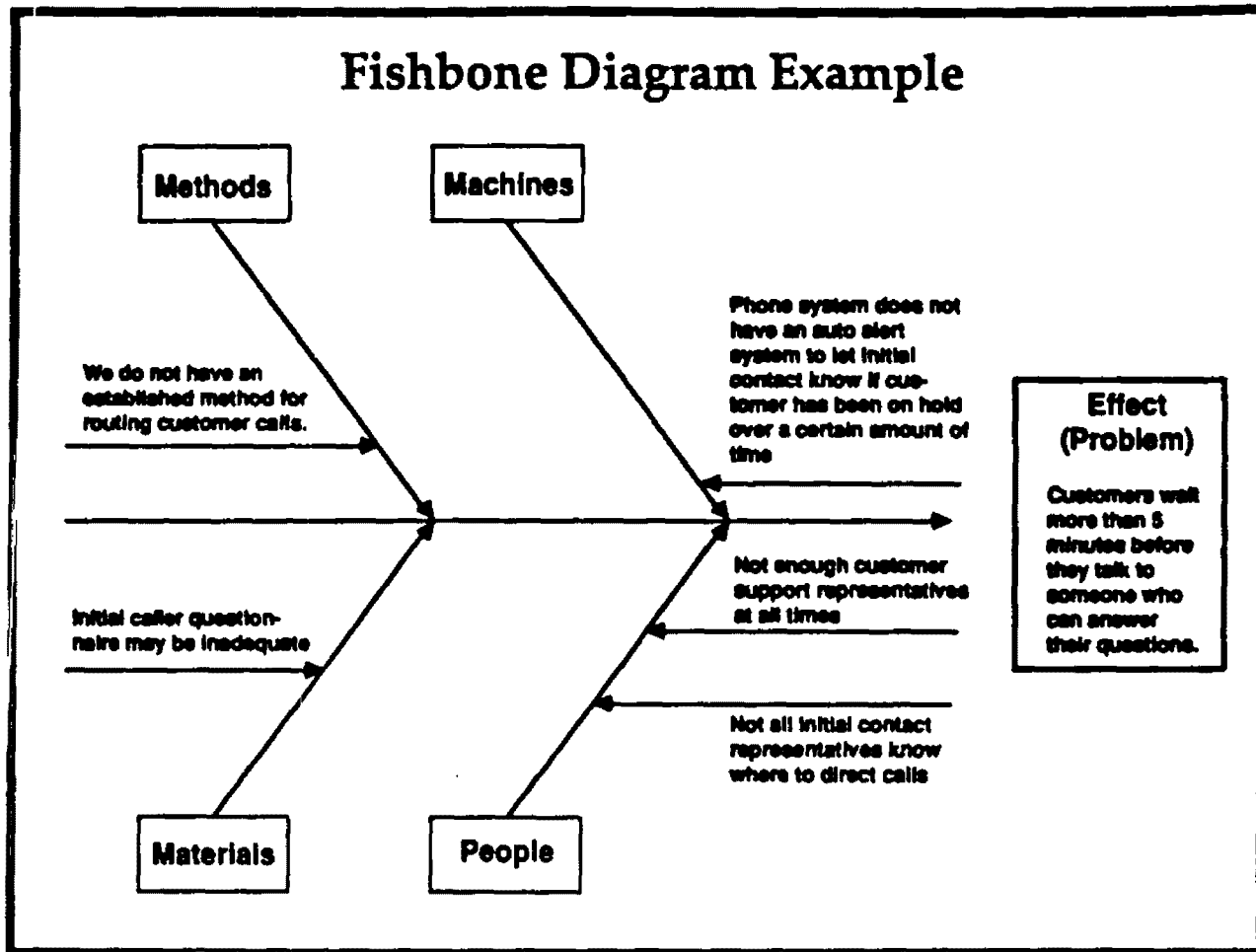*   To generate possible root causes of a problem or an effect.

Process
*   Write a description of the problem/effect in the box.
*   Determine what major categories of factions contribute to the effect or problem.
*   Write these categories in the boxes.
*   Brainstorm for possible causes of the problem in each category.
*   Select and circle the most probable causes.
*   Rank the causes in order of their contribution to the problem.
*   Begin designing a solution.

Guidelines
*   Works best after data has been collected and the problem is fairly well understood.
*   These categories are used most often: methods, machines, materials, and people.

Fishbone Diagram

Cause

Cause

Cause
Detail
Detail

Cause

Effect
(Problem)

*   Possible cause categories
    -   Methods
    -   Machines
    -   Materials
    -   People

*   Rank causes

*   Select highest ranked causes for action

Fishbone Diagram Example

Methods

Machines

We do not have an
established method for
routing customer calls.

Phone system does not
have an auto alert
system to let initial
contact know if cus-
tomer has been on hold
over a certain amount of
time

**Effect
(Problem)**

Customers wait
more than 5
minutes before
they talk to
someone who
can answer
their questions.

Not enough customer
support representatives
at all times

Initial caller question-
naire may be inadequate

Not all initial contact
representatives know
where to direct calls

Materials

People

Pareto Diagram

Purpose

- Displays the relative importance of data.

- Highlights the vital few in contrast to the trivial many.

- Helps identify which problems, causes, or conditions are the most significant or frequent.
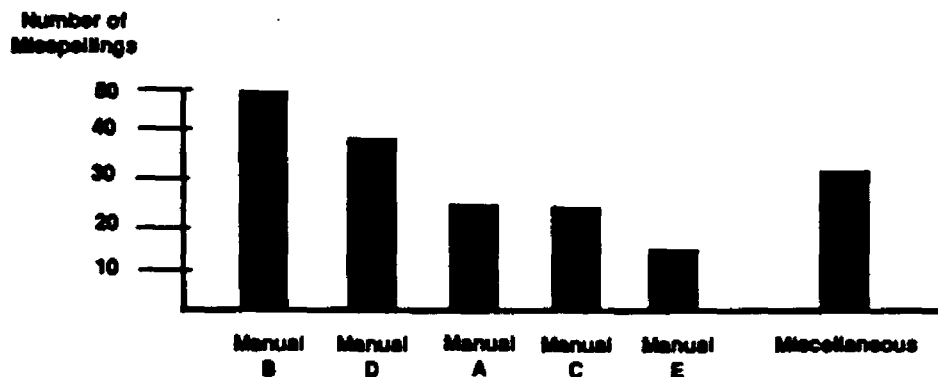
Process

- Collect data.

- Arrange data in categories.

- Create a bar chart in descending order.

- Group miscellaneous items to the right.

- Look for the Pareto effect (80/20) to identify the major problem(s).

Guidelines

- Each bar represents a different category of occurrence.

- You must have valid measurements for this tool to work.

Example of Pareto Diagram

MEASUREMENT WORKSHEET
(Adapted from Philip Crosby)

Candidate Process for Change:

Team Members:

1.   Describe the **process** to be measured.

2.   Describe the **means of measurement**.

3.   **Data collection:**

   a.   By whom?

   b.   When and how often?

   c.   How?

4.   Conduct a **baseline measurement** and record results.

5.   **Data dissemination:**

   a.   Who records the data measured?

   b.   How is this data graphically represented?

   c.   Who needs to be aware of this information?

   d.   How is this information communicated?

6.   Who will evaluate the effects of the change?

Step 5: Implement Change in a Controlled Environment

- Develop and adhere to an implementation plan.

- Make sure that there is a common understanding and agreement between the supplier and customer as to what is being implemented.

- If new procedures are used, make sure that they are written and that they are followed exactly as they are written.

- Change the existing process temporarily.

- If several areas use the same process, change only one thing at a time.

- Simulation and/or modeling can be used but make sure that the real process is being represented.

- Implement the change in a controlled environment that resembles the real work environment as much as possible.

- Assess the impact of undoing the change if it does not work.

- Collect data according to the plan developed in Step 4 to ensure that the "changed process" is being measured.

- Beware of any outside influences that may impact results.

Step 6:   Evaluate Effects of Change

- Be objective.

- Analyze data.

- Compare change and data collection with plan.

- Make a decision based on the data.

- If results are not satisfactory, do the following:

  -

  -

  -

- Document all results (positive or negative).

- Reward participants for using the process.
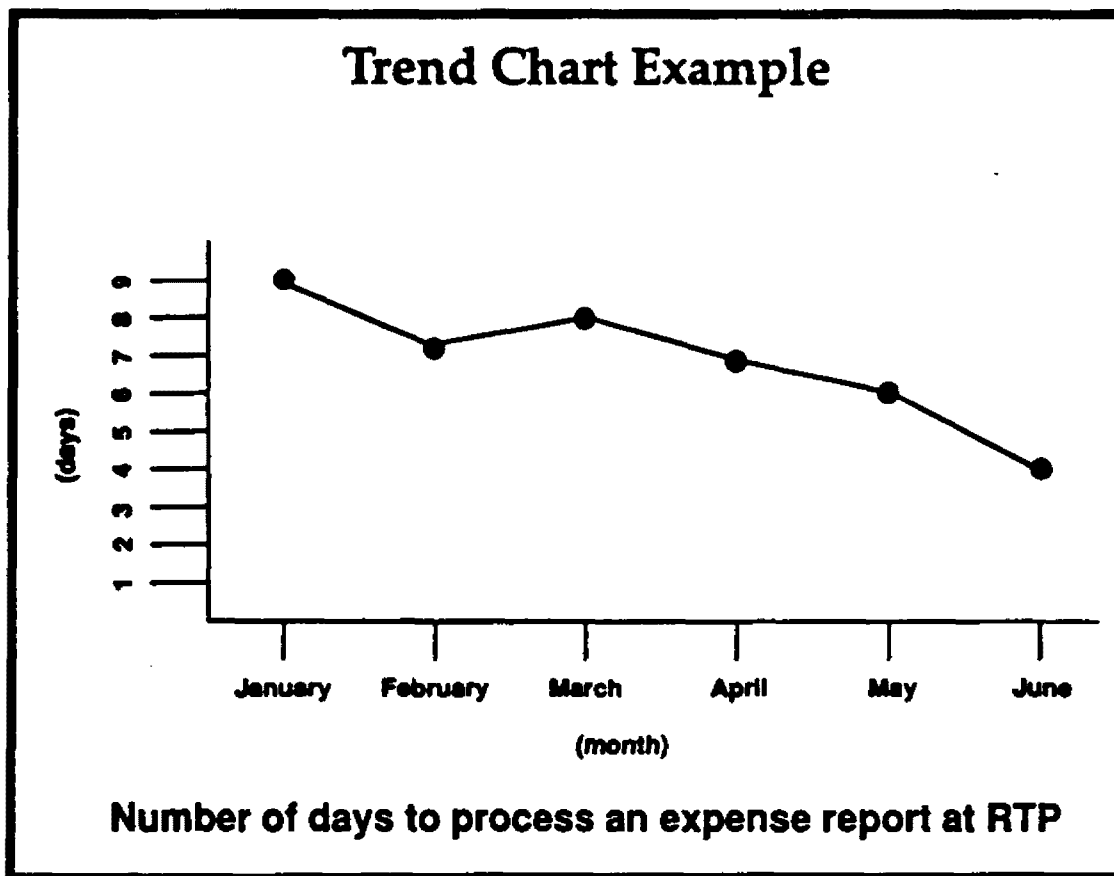
Trend Chart

Purpose
- Graphically depict data over time.

Process
- Choose a <u>measure</u> and put it on a <u>vertical axis</u>.

- Choose a <u>time</u> interval for taking measurements and put it on the <u>horizontal axis</u>.

- Enter the measurement (data points) chronologically on the chart.

- Connect the data points by drawing a line.

Guidelines
- Look for patterns or trends.

Trend Chart Example

(days)

January   February   March   April   May   June

(month)

Number of days to process an expense report at RTP

Step 7: Change Process Permanently

- **Communication** is the most important part of this step.

- The following information needs to be communicated to all affected processes and individuals:

  - _____ of the change
  - _____ for the change
  - Implementation _____ for the change:

    1. What?
    2. To Whom?
    3. By When?
    4. How?

- Implement change.

- Make measurements to assure that planned improvements are still valid when implemented in the "real" environment.

- Do follow-up measurements at a specific time in the future to ensure that the change is continuing to have the desired effect.

Action Plan

Purpose
*   An Action Plan is an outline of who will do what, when, and by what methods.
*   It ensures that nothing is left to chance when a change is implemented.

Process
Create a chart or flowchart that depicts the plan of action . Consider the answers to the following questions as you develop your chart:
*   What needs to be done?
*   When does each task need to be done?
*   Who will do each task?
*   How will it be done?
*   What resources are needed?
*   Are there any special circumstances or needs that should be taken into account?

Guidelines
*   Put the plan in writing.
*   Use a chart or a flowchart.

Action Plan for Developing a Technical Training Course Manual

Action To Be Taken	Date Completed	People Responsible	Method	Resources Needed	Special Needs
Research Training Course	4/4/92	Educational Services Department Staff	• Develop Survey • Conduct Survey	Desktop Publishing	• Data Analysis Assistance • Advice on survey questions
Develop Training Course Manual	5/30/92	Sr. Training Writer	Use standard curriculum design model	Desktop Publishing	Clerical support
Review Training Course Manual	6/15/92	Technical Experts	Check accuracy against reference manual	• Reference Manual • Proofreader's sheet	Large print (12 pt. size)
Insert Review Changes	6/20/92	Sr. Training Writer	Mark off change as it is entered	Desktop Publishing	Clear editing marks
Print Course Manual	7/1/92	Publications	In-house copier	Camera-ready copy	Binders and dividers for manuals

Team Exercise

Select one of the following options:

Option 1

- You may continue working on the process you flowcharted.

- If time permits, try to do the following:

    - Identify candidate process change (Step 4) and develop a set of measurements.

    - Develop an implementation plan.

    - Develop a communication strategy for implementing the change. (Since you cannot really test the change, for exercise purposes, assume that the change was successful.)

Option 2

- You may select another issue and take it through as many of the seven steps as possible.

Conclusion

- In this module you used the seven steps of the Total Quality Process and the Total Quality Process tools to change a process.

- You will continue to use these steps and tools as work on quality issues in the workplace. They are the backbone of the continuous improvement process.

Module 6:
What Can
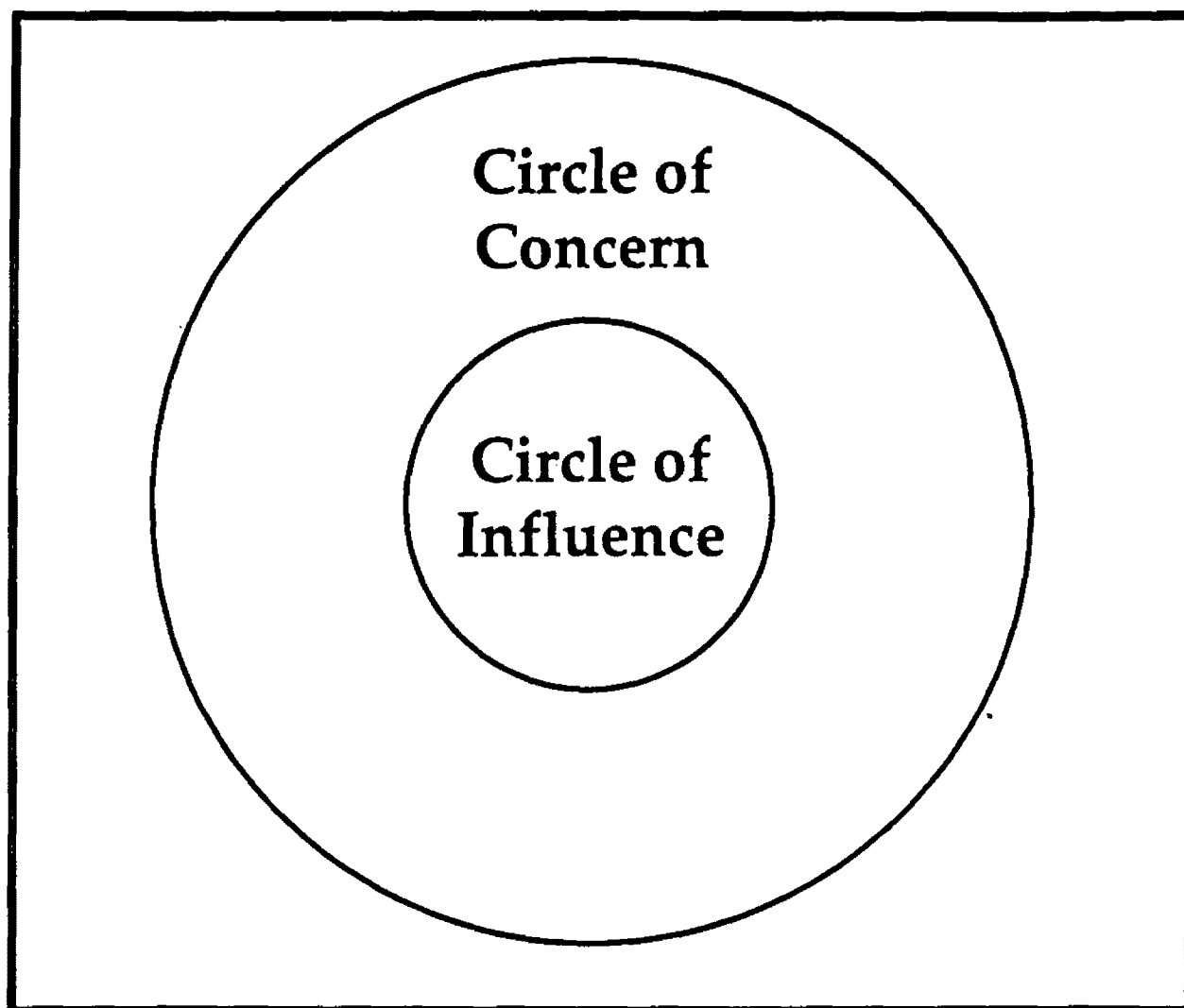## I Do?

MODULE 6: WHAT I CAN DO?

Module Objectives

By the end of this module, you will be able to do the following:

- Describe the Circle of Concern and the Circle of Influence as they relate to proactivity and reactivity.

- Identify proactive steps you can take to increase quality in your workplace.

- Determine your own quality leadership style.

- Explain the types of activities that take place in the four quadrants of the Time Management Matrix and how they impact on working smarter as opposed to working harder.

What Difference Can One Person Make?

How much difference do you think one person can make?

```
┌─────────────────────────────────────────┐
│                                         │
│            Circle of                    │
│            Concern                      │
│                                         │
│              Circle of                  │
│              Influence                  │
│                                         │
│                                         │
└─────────────────────────────────────────┘
```

- **The Circle of Concern** encompasses things over which we have no real control.

- **The Circle of Influence** encompasses things we can do something about.

Proactive People Versus Reactive People

Proactive people focus their efforts in the Circle of Influence. They work on the things they can do something about. The nature of their energy is positive, enlarging, and magnifying, causing their Circle of Influence to increase.

Reactive people focus their efforts in the Circle of Concern. They focus on the weaknesses of other people . . . and circumstances over which they have no control. Their focus results in blaming and accusing attitudes, reactive language, and increased feelings of victimization. The negative energy generated by that focus, combined with neglect in areas they could do something about, causes their circle of Influence to shrink."

Stephen Covey
From The Seven Habits of Highly Effective People

"Proactive or reactive? Which are you?"

Be Proactive by Taking These Steps:

- Take ownership.

- Understand your process.

- Identify process problems and establish quality teams to resolve them.

- Use the seven steps every day.

- Adopt quality as a passion.

- Be consistent.

- Provide positive energy.

- Set some goals — do something.

- Ask "Why?"

- Put yourself in your customer's/supplier's shoes.

- Aim for "Win/Win" in all your relationships.

Develop Your Own Quality Leadership Style

Champion

- Views quality as a _____.

- Is quality-driven or motivated in every effort.

- Has a constant _____ focus.

Model

- Makes quality part of doing the job.

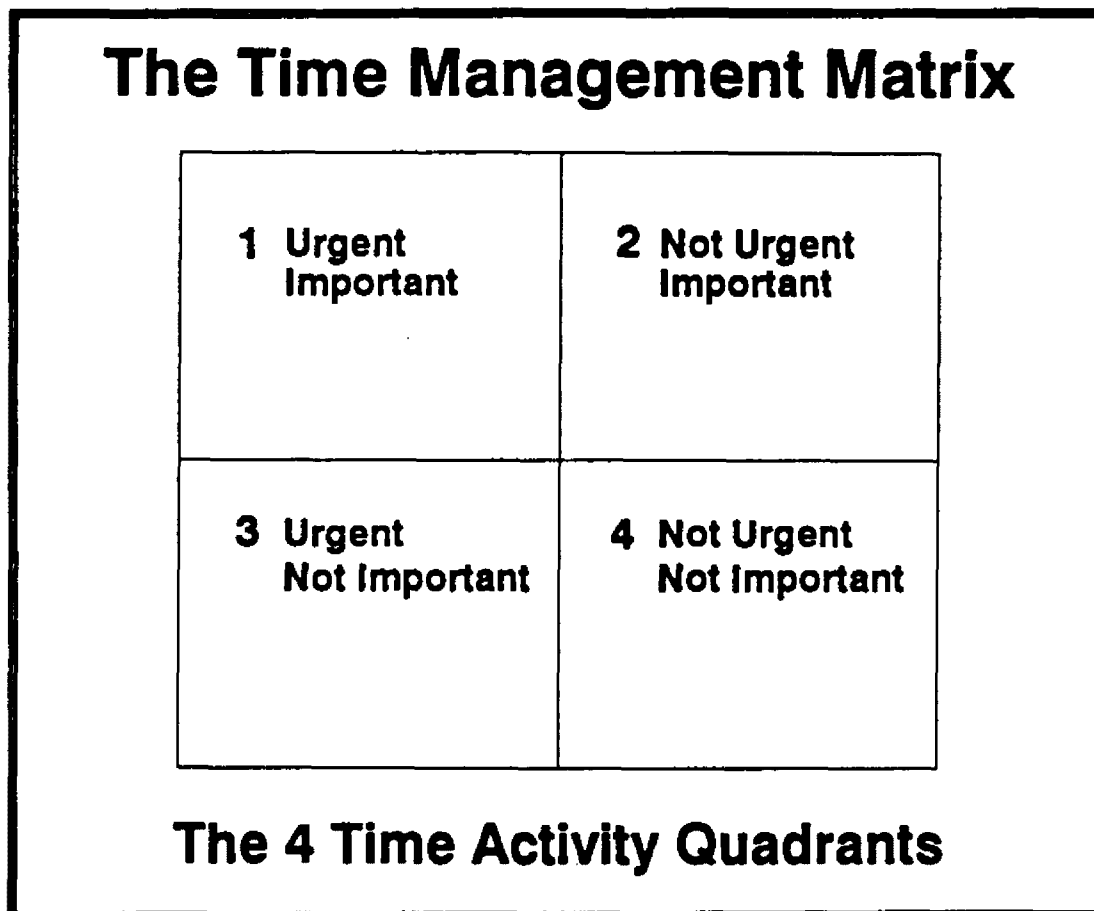- Does right things right.

Mentor

- Acts as a _____ to others.

- _____ what they know and what works for them.

- Sponsors and supports the quality efforts of individuals and other teams.

Working Smarter

We may not always be able to work longer, harder, or have more time to complete a task. With declining budgets, we must learn instead to **work smarter** – to use the time we have to the fullest advantage.

If we examine where we are spending the bulk of our time, we can identify ways that we can make the most of the time that we do have.

There are four **types of activities** in which we spend our time:

The Time Management Matrix

1 Urgent **Important**	**2 Not Urgent** **Important**
3 Urgent **Not Important**	**4 Not Urgent** **Not Important**

The 4 Time Activity Quadrants

(Concept taken from Stephen Covey's <u>Seven Habits of Highly Effective People</u>.)

Written Activity

Take a few minutes to list the activities in which you are involved in the appropriate quadrants.

Quadrant 1: Urgent and important:
-
-
-
-
-
-
-

Quadrant 2: Not urgent, but important:
-
-
-
-
-
-
-

Quadrant 3: Urgent, but not important:
-
-
-
-
-
-
-

Quadrant 4: Not urgent and not important:
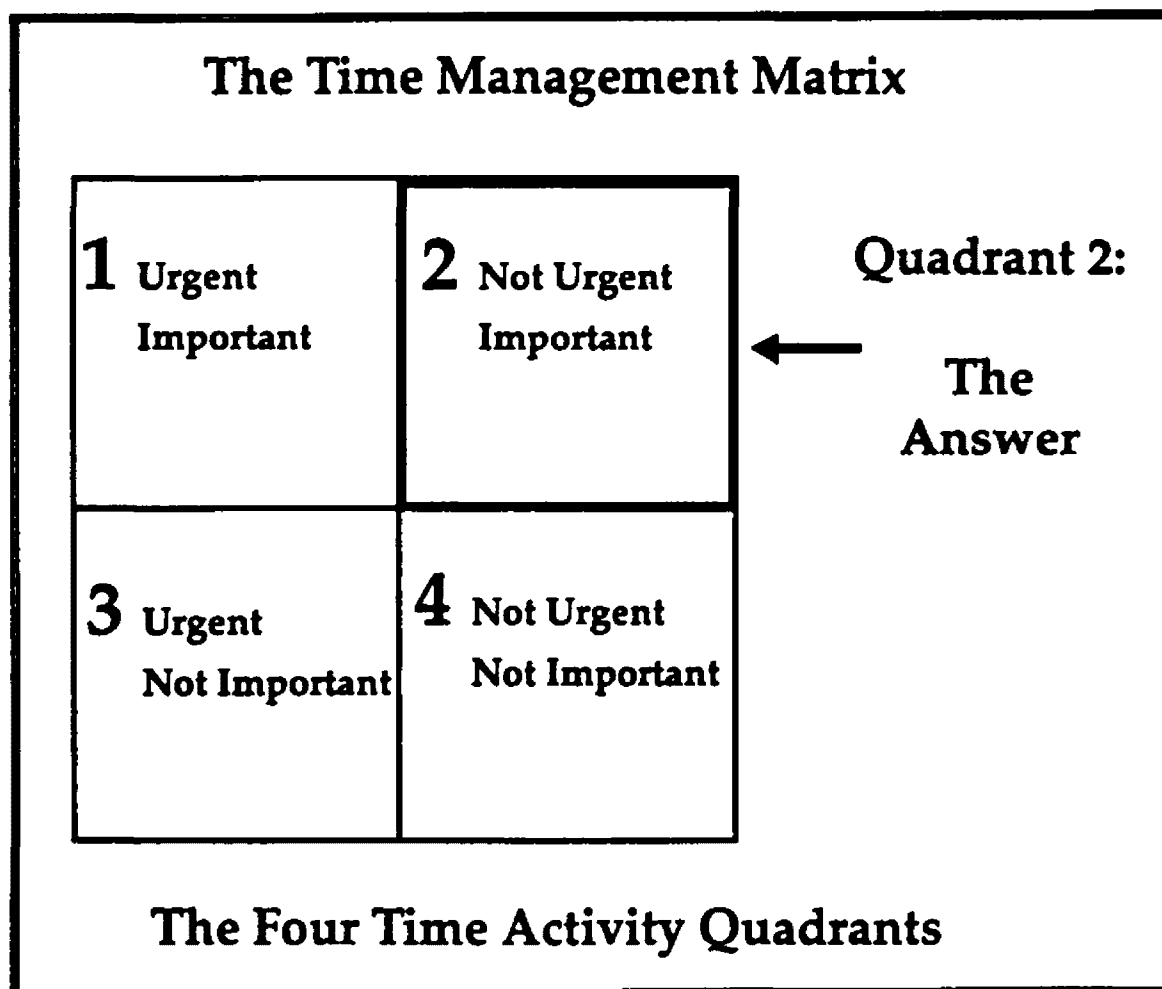-
-
-
-
-
-

Making the Most of Your Time

The goal should be to work in **Quadrant 2: Not Urgent, but Important.**

- Quadrant 2 is the **proactive** quadrant.

- If we do the planning, develop our assets, and invest in our relationships, we will begin to see a decline in the amount of time we spend in the other quadrants, especially quadrant 1.

Focusing on quadrant 2 activities makes you **work smarter** by enabling you to be proactive in how you spend your time.

The Time Management Matrix

1 Urgent Important	**2** Not Urgent Important
3 Urgent Not Important	**4** Not Urgent Not Important

Quadrant 2:

The Answer

←

The Four Time Activity Quadrants

Memo To Myself

The "Memo to Myself" asks you to think about the following:

- The three most useful insights gained.

- Your rating of your own personal commitment to quality improvement in your organization.

- Three quality improvement initiatives that you will begin to implement in the next 30 days.

- Other insights and comments.

Conclusion

- Did you get what you needed?

- What is next?

- Help us to improve.

Appendix A:
Evaluation
Materials

Memo to Myself

Date: _____

Dear _____,

The three most useful insights I gained during the Total Quality Process class were:

1.

2.

3.

I rate my own personal commitment to quality as

.

The three quality improvement initiatives that I will begin to implement within the next 30 days are

1.

2.

3.

I had the following other insights

Sincerely,

Total Quality Process (TQP)

SESSION EVALUATION FORM

This was a: ___Seminar (1 day)   ___Workshop (2 days)   ___Workshop (3 days)

Location (city,state):_____   **Date:**_____

Facilitator(s):_____ / _____

ADDITIONAL INFORMATION (Optional):

    I am a: ___Professional   ___Manager   ___Exempt   ___Non-exempt

    Employed by: ___Unisys   ___A Unisys Customer   ___A Unisys Supplier

    My organization is: _____

Please read each statement carefully and circle the appropriate response:

		Strongly Disagree					Strongly Agree
1.	I could frequently relate the session's content to issues I face in my job.	1	2	3	4	5	6
2.	The session provided me with practical and useful ideas and techniques.	1	2	3	4	5	6
3.	This was **not** just another abstract and theoretical program which will be difficult to apply at work.	1	2	3	4	5	6
4.	The value I received was definitely worth the time spent.	1	2	3	4	5	6
5.	I will recommend this session to others.	1	2	3	4	5	6
6.	If I could make the decision over again, I would attend this session.	1	2	3	4	5	6
7.	Overall, I think this has been an excellent experience.	1	2	3	4	5	6
8.	The expectations I had prior to attending were well satisfied.	1	2	3	4	5	6
9.	The session materials used were of high quality and professionally printed.	1	2	3	4	5	6
10	The materials will provide a useful reference guide which I will use frequently.	1	2	3	4	5	6
11.	If my manager hasn't/hadn't already attended this session, I strongly recommend that he/she do so.	1	2	3	4	5	6
12.	The facilitator(s) demonstrated an excellent knowledge of the session content.	1	2	3	4	5	6
13.	The facilitator(s) presented the material in a clear and interesting manner.	1	2	3	4	5	6
14.	The facilitator(s) encouraged interaction and participation.	1	2	3	4	5	6

Please answer the questions on both sides of this evaluation form. Thank you for your help in improving these sessions.

1. The three __most__ valuable parts of this session are:

   a) _____

   _____

   b) _____

   _____

   c) _____

   _____

2. The three __least__ valuable parts of this session are:

   a) _____

   _____

   b) _____

   _____

   c) _____

   _____

3. This session could have been more rewarding for me if: (comment on unfulfilled expectations, potential additional topics, facility or environment in which the session was held, etc.)

   _____

   _____

   _____

   _____

   _____

   _____

   _____

4. Things I __like__ / __don't like__ about the session materials and/or flow are:

   _____

   _____

   _____

   _____

   _____

   _____

5. When I get back to my job, the major action item(s) I intend to undertake as a result of this session is/are:

   _____

   _____

   _____

   _____

   _____

Appendix B:
Class
Tools

Selection Matrix

Goal or Problem Statement: _____

_____

Proposed Project/Change Description	Feasibility	Impact	Urgency	Rank

- Determine the goal or problem statement.

- Brainstorm list of items that are possible causes/solutions (as the case may be) to the problem or possible means of achieving the goal.

- Rate each item according to your criteria on a scale of 1 to 10 (1 is low, 10 is high).

- Average the criteria ratings for each item and place this number in the "Rank" column.

- Address the item with the highest ranking.

Force Field Analysis
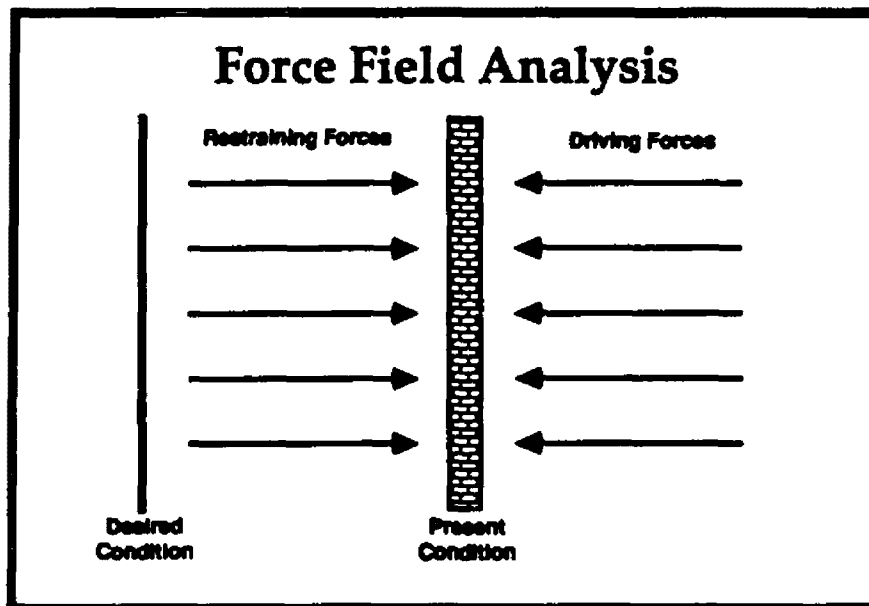
- Write a description of the current situation at the bottom of the centerline in the "Present Condition" field.

- Write a description of the desired situations at the bottom of the left-hand margin line in the "Desired Condition" field.

- Brainstorm and list possible restraining forces.

- Brainstorm and list possible driving forces.

- Discuss ideas for altering selected factors to increase chances of success.

- Prioritize the factors in the order of impact in restraining or driving toward the desired results.

- Brainstorm for ways of altering the high-priority factors, creating a problem solution statement.

- Evaluate the solution as to its viability.

- If the solution is viable, make a list of action items to alter the forces. If it is not viable, develop another solution.

FISHBONE DIAGRAM
(Cause and Effect Diagram)

METHODS

MACHINES

Effect or
Problem

MATERIALS

PEOPLE
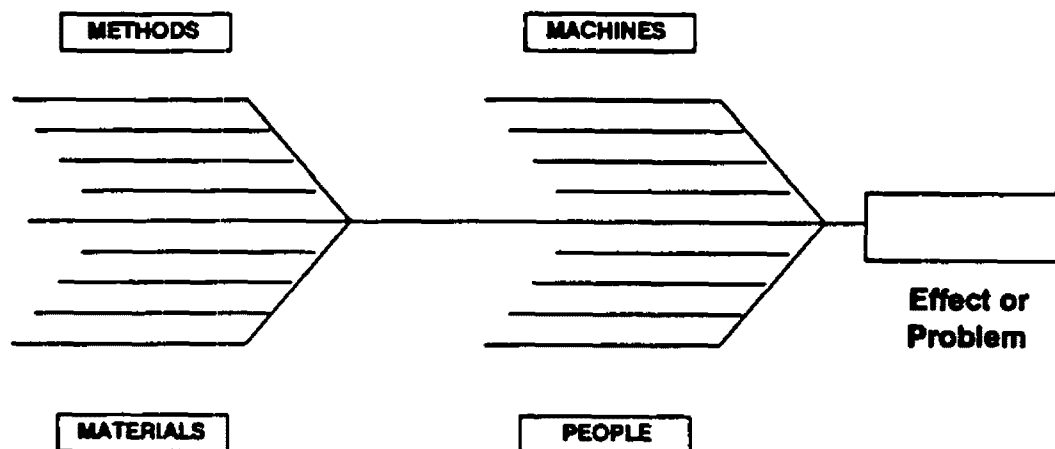
- Brainstorm for possible causes in each category.

- List possible causes on chart.

- Rank causes (using Selection Matrix).

- Take action on highest ranked cause.

MEASUREMENT WORKSHEET
(Adapted from Philip Crosby)

Candidate Process for Change:

Team Members:

1. Describe the process to be measured.

2. Describe the means of measurement.

3. Data collection:

    a. By whom?

    b. When and how often?

    c. How?

4. Conduct a baseline measurement and record results.

5. Data dissemination:

    a. Who records the data measured?

    b. How is this data graphically represented?

    c. Who needs to be aware of this information?

    d. How is this information communicated?

6. Who will evaluate the effects of the change?

Appendix C:
Corrective Action
Request (CAR)
Activity

CORRECTIVE ACTION REQUEST ACTIVITY

INTRODUCTION

Unisys is committed to total customer satisfaction and the delivery of error-free products and services on time, every time. To promote this policy and to ensure that its concepts are made an integral part of our ongoing management and work processes, we will continue to implement the Unisys Quality/Productivity Improvement Process (Q/PIP). This process is based on the Philip Crosby quality assurance principles which are used nationwide by many of America's largest corporations.

Purpose of the Corrective Action Request (CAR)

The EPA NDPD Facilities Management (FM) Project recently added a new component to Q/PIP: an activity called Corrective Action Request (CAR). The purpose of this activity is to identify and remove basic, root causes that contribute to the repetition of the same problem.

Corrective actions can be achieved when the following activities take place:

1.   The individual affected identifies and reports the cause.

2.   Formal corrective actions are taken at whatever levels are required.

In addition to correcting problems, the CAR activity also ensures a "hassle-free" environment in which all project employees are encouraged to do their best at all times.

Advantages of CAR

The current programs and activities comprising Q/PIP emphasize quality service through daily attention to identifying, analyzing, and resolving a wide variety of problems; however, there remains a major need for a simple and easy-to-use method whereby each employee can invoke a formal, systematic process to identify and resolve problems that prevent optimum personal performance in the workplace. The CAR activity provides such a method.

The CAR activity has the following advantages:

- CAR asks employees only <u>to identify and report the problem</u>. Employees do not need to provide a proposed solution (although recommendations are solicited).

- It encourages <u>resolution at the lowest possible level</u> while ensuring escalation of the matter to whatever level is required to eliminate the root cause. CAR goes well beyond the routine "quick fix" and helps remove recurring barriers to excellence.

- CAR emphasizes <u>shared responsibilities</u> by the individual employee and project management to provide a cooperative environment.

- It enables <u>each employee to initiate constructive change</u> and to contribute to total program excellence through improvement of the function each knows best: his or her own job.

- CAR is the fundamental <u>weapon against repeated problems</u> and errors, thus reducing frustration and waste.

ESTABLISHED BASE FOR THE CAR ACTIVITY

The EPA FM Project already has in place a set of strong, fully operational quality and productivity enhancement processes. These processes, however, generally address operational problems that are typically nonrepetitive because they involve such a large number of variables (including different customers, individual expectations, and changing needs). These current processes include the following:

- Centralized Problem Management System (CPM)
- Change Management Procedures (CMP)
- Telecommunications Service Request (TSR)
- MVS Integrated Control System (MICS)

In addition, there is an employee suggestion system to convey constructive ideas and to voice concerns to management. It is sponsored and assisted by the FM Project Employee Relations Council.

Note that the CAR activity will not supplant any of these vital programs, some of which are designed primarily for the user community. Instead, the CAR activity will encompass those problems and quality assurance issues not included in the other programs but still necessary to promote productivity and to enhance the working

environment and relationships. Working from the established base, a comprehensive corrective action program will be built to ensure that tasks are performed correctly the first time, every time.

Centralized Problem Management System

The **Centralized Problem Management (CPM) System** provides an orderly means by which the users of NCC resources may enter defined problems into the CPM System for review, timely resolution, and follow-up. (The CPM system is described in detail in Report 271/001, <u>EPA Centralized Problem Management System User Guide</u>.)

Change Management Procedures

Change Management Procedures (CMP) relate to the management control of the operating environment at the EPA's National Computer Center and its remote logical mainframe sites. The <u>Change Management Council</u> provides a visible forum for coordination, communication, and control of all significant changes to the NCC operating environment. (The CPM is described in detail in Report 245/001A, <u>Change Management Control Procedures Manual</u>.)

Telecommunications Service Request

The **Telecommunications Service Request (TSR)** provides an orderly method for the user to request input changes to their telecommunications environment. The TSR is a problem elimination process because it facilitates control of capacity, growth, and implementation of new technology. (The TSR is described in a formal TSR procedure and is available in the revised NDPD Standard for Telecommunications.)

MVS Integrated Control System

The **MVS Integrated Control System (MICS)** is a tailored, automated tool used to support and validate the management decision-making process at three levels: strategic, tactical, and operational. It provides improved communications, better-informed decisions, avoided costs, and historical records and trends. Though not a problem resolution system itself, it provides a basis and supporting data for the total monitoring, evaluation, and decision-making environment. (MICS, along with CPM and CMP, is described in Report 354/001, <u>Decision Support System Guide</u>.)

Employee Suggestion Program

The Employee Suggestion Program, administered through the FM Project Employee Relations Council (ERC), provides strategically located suggestion boxes in which employees may place improvement ideas and suggestions. The ERC then reviews, analyzes, and refers these items to management for further consideration. The program is highly useful for informal communications, especially those involving anonymous concerns and personal ideas for improving the working environment.

Related Activities

Ad hoc and regularly scheduled meetings conducted throughout the project are a further source of problem identification and resolution. These meetings serve for communicating problems, sharing ideas, and providing timely "fixes" for ongoing operational concerns.

In addition, many employees attend training courses and professional meetings and conferences. A basic purpose of such attendance is to increase the employee's awareness of problem identification and resolution and to develop better work products and methods.

COMPONENTS OF THE CAR ACTIVITY

Levels of Activity

The Corrective Action Request Form (Form N 424) is basic to the CAR process. The forms are available from each departmental secretary. (There is a copy of this form at the end of this document.)

Employees should complete the form and submit it through normal supervisory channels for priority attention.

Within the CAR process, identified problems must be documented and resolved formally. The most efficient method is through five established levels of activity:

1.   Within the Work Unit. Meetings are held, as necessary, to examine reported problems and to determine methods of eliminating causes. If a problem is not resolved at this level, it becomes a matter for departmental consideration.

2.   **Within a Department.** Supervisory and managerial staff hold weekly meetings to review problems which were unresolved within the work unit. Members of other departments involved with the problems also attend the meetings.

    a.   If the problem is resolved satisfactorily, the Corrective Action Form (Form N 424) and a copy of the problem's resolution are forwarded to the Quality/Productivity Improvement Team (Q/PIT) for closure and record purposes. Most problems will more than likely be resolved at these first two levels.

    b.   If the problem cannot be corrected within the work unit or department, the submitter completes the Corrective Action Form (Form N 424) and forwards it to the department Q/PIT.

3.   **Q/PIT Weekly Meetings.** The department Q/PIT holds weekly meetings during which a standing agenda item is to review any unresolved problems. Items reaching this level should be specific. Those requiring complex or long-range action are assigned to an ad hoc corrective action team.

4.   **Ad Hoc Teams.** Ad hoc corrective action teams are appointed by the Q/PIT and consist of responsible members of each affected work area, with one member appointed coordinator. The tasks are specified by Q/PIT, along with associated completion times. The ad hoc team is dissolved when the problem is resolved and closed by Q/PIT.

5.   **Site Q/PIT.** If department Q/PIT's are unable to resolve the problem satisfactorily, Corrective Action Request Form (Form N 424) is forwarded to the site Q/PIT for appropriate action. They, in turn, may "bump" the problem through the site manager to the System Development Group's Q/PIT Council, as necessary.

Corrective Action Flow

The following corrective actions are used by Q/PIT and the ad hoc corrective teams to resolve problems:

1.   **Complete CAR Request Form.** The Corrective Action Request Form (Form N 424), submitted via the supervisor and manager, should include the following information:

    a.   A detailed account of action taken to date.

b.   Reasons for the inability to resolve the problem at the lower levels.

Upon receipt by the department Q/PIT, the team reviews the problem and logs the problem onto the CAR Status Log (Form N 425). Q/PIT takes the following actions:

a.   Retains a copy of the request.

b.   Provides a copy to the ad hoc corrective action team, if one must be appointed.

c.   Reports back to the submitter within two weeks the status of the action taken to that point.

2.   **Appoint Ad Hoc Team and Coordinator.** For problems that cannot be quickly resolved by Q/PIT, the Q/PIT appoints an ad hoc team to represent any department connected with the problem. The member who is appointed coordinator, reports the status of the problem to Q/PIT weekly.

3.   **Follow Ad Hoc Team Procedures.** Using the Corrective Action Request Form (Form N 424), the ad hoc task team reviews the reported problem. Then, using a CAR Worksheet (Form N 426), the team analyzes and researches the problem. The worksheet provides a checklist of each step taken and gives the results derived during analysis, research, and implementation of corrective action.

The ad hoc team first defines the following items:

a.   The scope of the situation.

b.   The processes involved.

c.   The specific nonconformances.

A solution is applied, if necessary, to bring the existing problem back to conformance. Then, the team works to find the root cause of the problem. Once the root cause is revealed, corrective actions are determined to eliminate it and to prevent its recurrence.

At this point, Q/PIT reviews the recommended corrective actions and either approves implementation or requires that further work be done by the ad hoc team. One member (usually the coordinator) assumes responsibility for

evaluating the effectiveness of corrective actions. The follow-up time is long enough to determine whether or not the problem has been eliminated.

If the ad hoc team determines that the corrective action was not effective, the team reassembles and again researches possible root causes. This process continues until the problem is eliminated. A monthly report will be developed by Q/PIT to monitor the status.

When the evaluation and follow-up is complete and the problem has been eliminated, the ad hoc team ensures that all applicable documentation (system documentation, procedure manuals, etc.) is updated and then requests Q/PIT to close the task.

If the ad hoc team requires information not readily available to them, they may request the information from Q/PIT by submitting an Action Item Request (Form N 427). Q/PIT will then assign the action item to one of its members within the area of expertise.

4.   **Close the Corrective Action Task.** Once all the preceding requirements in the corrective action flow have been completed and the documentation submitted to Q/PIT, the ad hoc team is disbanded and the corrective action task is closed. Q/PIT updates the CAR Status Log (Form N 425) to reflect the closure.

5.   **Site Q/PIT Procedures.** If the problem is forwarded to the Site Q/PIT for resolution, they will log the problem onto their own CAR Status Log (Form N 425) and follow the same procedures as outlined in numbers 2, 3, and 4 above.

Training

To ensure the most effective use of the CAR activity, each site Q/PIT member provides training to all employees represented by that member. The training covers the following topics:

*   Corrective action flow.
*   Corrective Action Request forms.
*   Ad hoc team appointment.
*   Q/PIT involvement.
*   Corrective Action Request activities' place in the overall quality and productivity improvement process.

Disposition of CAR Problem

The chairperson of Q/PIT (or his or her designee) personally contacts the original submitter of the problem and makes certain that it has been resolved. If it has not been resolved, the problem becomes a priority item on the agenda of the next Q/PIT meeting.

CORRECTIVE ACTION REQUEST (CAR)

TO: Q/PIT   Date: _____

THROUGH: Supervisor
             Department Manager

FROM: _____

DESCRIPTION OF NONCONFORMANCE: _____

_____

_____

_____

Has a Problem Management (PM) number been issued? If so, give PM number. _____

What "fixes" have already been applied? _____

_____

Does a clear, written requirement exist? If so, where? _____

_____

Whom does the problem impact? _____

_____

Who, other than yourself, might help identify the root cause? _____

_____

How will we tell when the root cause of the problem has been eliminated? _____

_____

How urgent is it to resolve the problem? For example, what is the "cost" of its continuance?

_____

What alternatives may be feasible? _____

_____

- -

COORDINATOR TO COMPLETE:

Date Logged: _____   Due Date: _____
Log Number: _____

The necessary actions are completed and submitter indicates satisfaction:

Date: _____
Signed: _____   Q/PIT Chairperson

N 424

CAR   STATUS LOG

CAR #	DATE	SUBMITTER NAME	DUE DATE	CAR TEAM COORDINATOR	DATE COMP'D	DATE CLOSED

CAR WORKSHEET

A. IDENTIFY PROBLEM/DEFINE SITUATION

    1.   What is the scope of the problem? _____

          _____

          _____

    2.   What is the specific nonconformance being corrected? _____

          _____

          _____

    3.   Have the criteria for solution been defined? If so, what? _____

          _____

          _____

B. FIX PROBLEM

What " fixes" have (or will be) applied to avoid further complications by this problem?

    _____

    _____

C. DETERMINE ROOT CAUSE

    1.   List all possible reasons for the nonconformance. _____

          _____

          _____

          _____

    2.   Investigate all the opportunities for error listed in item C1. _____

          _____

          _____

          _____

    3.   Determine the primary root cause. _____

          _____

CAR WORKSHEET (Cont.)

D.   DETERMINE CORRECTIVE ACTION

    1.   Which process will be changed? _____

    2.   What input of the process will change?

        a.   Equipment _____
        b.   Facilities _____
        c.   Procedures _____
        d.   Performance Stds. _____
        e.   Training _____
        f.   Consumable Input _____
        g.   Other _____

    3.   Who will approve the change of the process? _____

    4.   When will the change be implemented? _____

    5.   What documentation changes will be required? _____

_____

    6.   Who must be informed and concur with the changes before they are implemented?

_____

    7.   Implement Corrective Action. Describe. _____

_____

_____

E.   EVALUATE AND FOLLOW UP

    1.   Who is responsible for monitoring the situation? _____

    2.   What specific actions are to be performed for evaluation? _____

_____

_____

    3.   How long will the evaluation and follow-up continue? _____

    4.   Completion Date: _____

ACTION ITEM REQUEST FORM

Date: _____   CA # _____

Requestor: _____

Description of Information Needed   Date Needed

1. _____   _____

   _____

   _____

2. _____   _____

   _____

   _____

3. _____   _____

   _____

   _____

4. _____   _____

   _____

   _____

5. _____   _____

   _____

   _____

Q/PIT Action

_____

_____

Assigned to Q/PIT Member _____

Date Received by Ad Hoc Team _____

N 427

Appendix D:
Articles

Taken from <u>Quality Improvement through Defect Prevention</u> by Philip Crosby

Before leaving the subject of Zero Defects, another view is helpful. The following section is adapted from "Quality is Free." It explains the concept of Zero Defects and is helpful in explaining it to others.

The services and products of business are not good enough. Customer complaints are rising; there is too much waste. Those products that work trouble free do so because of an investment in test, inspection and service that is out of proportion. Many companies spend 20 percent of their sales dollar on reprocessing scrap, rework, warranty, service, test and inspection. The errors that produce this waste are caused directly by the personnel of the company, both employees and management.

To eliminate this waste, to improve the operation, to become more efficient, we must concentrate on preventing the defects and errors that plague us. The defect that is prevented doesn't need repair, examination or explanation.

The first step is to examine and adopt the attitude of defect prevention. This attitude is called, symbolically, Zero Defects. Zero Defects is a standard for management, a standard that management can convey to the employees to help them decide to "do the job right the first time."

People are conditioned to believe that error is inevitable. We not only accept error, we anticipate it. Whether we are designing circuits, programming a computer, planning a project, selling the product, typing letters, completing an account ledger or assembling components, it does not bother us to make a few errors and management plans for these errors to occur. We feel that human beings have a "built-in" error factor.

However, we do not maintain the same standard when it comes to our personal lives. If we did, we would resign ourselves to being shortchanged now and then as we cash our pay checks. We would expect hospital nurses to drop a certain percentage of all newborn babies. We would expect to go home to the wrong house by mistake periodically. As individuals we do not tolerate these things. Thus we have a double standard--one for ourselves, one for the company.

The reason for this is that the family creates a higher perform- ance standard for us than the company does.

In short, we must determine if we, as management, have made our desires clear to those who look to us for guidance and direction. We must provide an understandable, constant standard for quality performance.

Consider the three basic areas of performance in any organiza- tion: cost, schedule and quality. All these are vital for success. Each requires the establishment of a performance standard that cannot be misunderstood.

Take cost. Everyone understands what $2.35 looks like. There may be some argument about what to do with the money, but everyone understands its substance. A budget is set, and the standard is to make the job and the funds come out together.

Schedule also has an understandable common base: time. We all use the same standard calendars and clocks. Delivery and completion dates are specified in contracts and requirements. We either meet the dates or we do not.

Now what is the existing standard for quality? Most people talk about an AQL--an acceptable quality level. An AQL really means a commitment before we start the job to produce imperfect material. Let me repeat, an acceptable quality level is a commitment before we start the job that we will produce imperfect material. An AQL, therefore, is not a management standard. It is a determina-tion of the status quo. Instead of the managers setting the standard, the operation sets the standard.

Consider the AQL you would establish on the product you buy. Would you accept an automobile that you knew in advance was 15 percent defective? Five percent? One percent? One-half percent? How about the nurses that care for newborn babies? Would an AQL of three percent on mishandling be too rigid?

Why is service so bad when we all know it's so important?
Maybe because we try to manage
and deliver services as if they were products.

THE EMERGING ART OF
SERVICE
MANAGEMENT

BY RON ZEMKE

You know the litany by now. We live and work in a service-centered, service-sensitive economy. In North America, 80 percent of the jobs and 60 percent of the gross national product come from the performance of services rather than the production of products. Organizations that deliver high-quality service increase or maintain market share and have a higher return on sales than do their competitors. Clearly, service quality is critical for success in these recessionary, post-industrial times.

Yet most of us find out every day that service in North America is, at best, mediocre. The pages of the daily newspaper are filled with titillating tidbits about bad service: Airlines can't get you there safely, on time, with your luggage intact. Fix-it shops can't fix it, and they blame you for expecting them to. Hospitals treat patients like meat. Restaurants treat diners like mental patients. Banks tell you, "Put it in the mail or use the money wall or phone it in, but don't talk to me, pal. I'm too important to deal with customers." These scenarios are telling moments of truth, and all-too-familiar features on the landscape of the serviceless service economy.

Why is service so bad when we all know it's so important? The emerging answer seems to be that we try to manage, produce and deliver services the same way we manage, produce and deliver products. And the two are as different as the farm is from the factory.

THE DIFFERENCES

Hard-core quality assurance and total quality management (TQM) advocates have long contended that differences between products and services are trivial. They have insisted that proper adherence to W. Edwards Deming's philosophies and Joseph M. Juran's statistical process control procedure will cure service quality problems—just as they have "cured" North American manufacturing. But even among the most steadfast supporters of TQM, doubts about that tenet are appearing.

A November 1991 article in *Quality Progress* magazine, the official organ of the American Society for Quality Control, declared that the differences between products and services are real. Ignoring them contributes to lack of quality in both.

While the distinctions may have been lost on some old-line quality assurance types, they have not been missed by a good number of market researchers. A. ("Parsu") Parasuraman, professor of marketing at Texas A&M University, is clear about the differences and adamant about their importance.

Services are performances, rather than objects, he says. "Quality of service has to occur in real time as opposed to being composed in a factory. Service organizations don't have the luxury of a factory acting as a buffer between production and consumption." Consequently, you can't control the quality of service "perfor-

mances" using the same techniques you use to control product quality.

Patrick Townsend, president of Avitar International Inc., a consulting company in Holden, MA, agrees that the differences between services and products require a different approach to management. He points to measurement as just one example that highlights the differences. "In manufacturing, the specifications (of the product) are the source of the measurement. High quality is a three-step process: Figure out what the customer wants, create a set of specs, and measure your produced products against the specifications. Zero deviation from the specs equals perfect quality."

But in service delivery, he says, even the description of the process is only an approximation, conditional upon the varying expectations of individual customers. Forget about specs. Customers carry the specs around in their heads, and service providers have to adjust delivery to accommodate the customer on the spot.

Joan Gebhardt, also of Avitar International, and coauthor with Townsend of *Commit to Quality* (Wiley Press, 1986), calls the management of quality service "management plus." She explains: "Everything you hear people saying about managing and leading for high quality in manufacturing probably applies to service organizations, with modification, plus a whole lot more."

Undoubtedly, there are as many ways of

describing the "plus" as there are willing describers. But five general categories cover many of the pressure points critical to managing service delivery.

1. Focusing on What's Important

One of the clear differences between service and product management involves the definition of what constitutes a "quality" outcome. Most manufacturers, for example, consider 100 percent adherence to specifications throughout the production stream their guiding light. This is what quality guru Philip Crosby terms "zero defects."

Service quality experts are beginning to eschew the "defects" model of quality as their absolute guide and look to customer retention instead. This view, termed a "zero defections" approach to quality by Frederick E. Reichheld of Bain & Co., a Boston-based management consulting firm, and W. Earl Sasser Jr. of Harvard Business School, highlights a fundamental difference between product and service quality.

As Reichheld and Sasser described their thesis in the September-October 1990 issue of *Harvard Business Review*, manufacturing success rests on a continuous search for ways to decrease product costs and increase product reliability. In contrast, service companies become more successful—and profitable—by finding ways to retain customers.

Automobile manufacturers succeed when you buy one of their cars, drive it, like it, and don't need to bring it back for expensive, free repairs. Their profit comes from your purchase of that unit. For a restaurant—or a dry cleaner or any pure service provider—the formula is different. These establishments succeed when you try their service; find that you like the fare, the ambience, the treatment and the prices; and come back again because you were so satisfied with the total experience.

That difference is most pronounced and easiest to see, write Reichheld and Sasser, when you look at the way a credit-card company makes money. During your first year as a customer, the credit-card company loses money on your business. How? The cost of attraction (advertising to get

your attention and the expense of any special come-ons) and the cost of opening your account and issuing your card are not offset by the fees you pay for the service or the fees charged to card-honoring establishments with which you do business. Only after the start-up costs have been recovered and you've begun to use the card regularly does the credit-card company profit from having you as a customer.

Thus, if credit-card companies are to profit from your business, their goal must be to keep you from defecting. AT&T made a big splash when it entered the credit-card business in 1990 with its Universal Card. But signing up 3 million subscribers in nine months won't make the venture a success. Keeping those customers will.

Wait a minute. Don't car companies make money on auto repairs? Don't they cash in, eventually, on repeat business from satisfied customers? Don't doctors, hospitals, restaurants and laundries make money on unit sales? To be sure, they do. The point is, product and service companies are profitable and successful in different ways. That critical difference is reflected in the ways they measure quality, manage customers and select employees.

2. Measuring What Counts Most

There is a difference between being served and feeling served. Robert A. Peterson, a professor of business administration at the University of Texas in Austin, found that asking customers how they feel about an organization's service more accurately predicts whether they will remain customers than asking them to evaluate the accuracy of the service rendered. "Customers who feel strongly about your organization—positively or negatively—are the customers most likely and least likely to do business with you again," he says.

Peterson's research suggests that there isn't a very strong correlation between

---

SERVICES VS. PRODUCTS

The differences between a service and a product, between a patient's stay in a hospital and the assembly of the left front fender of a Chevrolet, are significant. To manage service effectively, you must understand the characteristics that distinguish a service from a product.

Here are seven of the most critical:

PRODUCTS	SERVICES
1. The customer owns an object.	1. The customer owns a memory. The experience cannot be sold or passed on to a third party.
2. The goal of product producing is uniformity—all widgets are alike.	2. The goal of service is uniqueness: each customer and each contact is "special."
3. A product can be put into inventory; a sample can be sent in advance for the customer to review.	3. A service happens in the moment. It cannot be stockpiled.
4. The customer is an end user who is not involved in the production process.	4. The customer is a coproducer who is a partner in creating the service.
5. One conducts quality control by comparing output to specifications.	5. Customers conduct quality control by comparing expectations to experience.
6. If improperly produced, the product can be pulled off the line or "recalled."	6. If improperly performed, apologies and reparations are the only means of recourse.
7. The morale of production employees is important.	7. The morale of service employees is critical.—R.Z.
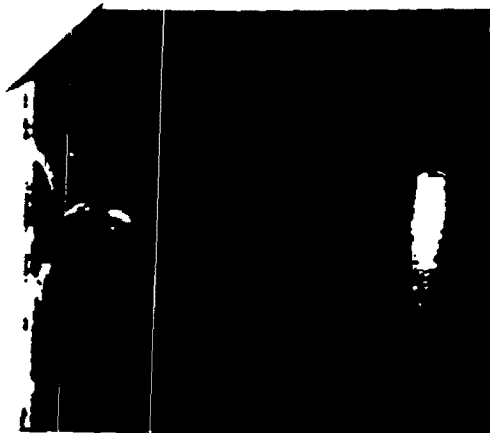
customer satisfaction and repeat business: "Customer satisfaction is not a goal, it is an obligation," he says. In most surveys of customer satisfaction, about 85 percent of an organization's customers claim to be "satisfied" with the service they receive, but still are willing to wander away to other providers if the mood—and the price—is right.

Peterson believes we've underplayed the emotional aspects of customer service because we try to make service measurements seem more like product quality measurements. Since we discount the impact of the "affective" component of customer service, we fail to ask about it in customer research, he contends. To deal with the customer's affective agenda, words like "love" and "hate" must be options on customer surveys. We need to exceed "satisfaction" as a goal and incorporate much stronger feelings than "like" and "satisfaction" in our objectives.

Valarie Ziethaml, associate professor of business at the Fuqua School of Business at Duke University, maintains that useful service measurements are rare because they differ so radically from product quality measurements. "It's harder to create service measurements that are effective," she says. "With a physical product, quality is measurable with engineering measurement tools and techniques. Useful service quality standards look at employee behaviors and customer perceptions. Those are harder to measure with engineering precision, but they're more important things to measure nonetheless."

The net result: Managers end up managing for trivial outcomes—things that are easy to measure, but not very important to accomplish. Typical low-value measurements, says Ziethaml, are things like the number of times phones ring before they are answered, the length of phone calls and even the number of shipments out the back door.

"You want the measures to be customer-driven," she explains. "Satisfaction

with the information received or problem discussed during a phone call is hard to measure, but it's more important than the number of minutes and seconds a phone call lasts." Likewise, she says, finding out if shipments arrived at their destinations on time is more important than knowing they left your shipping dock when you wanted them to.

She points to Federal Express, which measures hundreds of things about its service delivery system, as an organization that has its priorities straight. "For all that Federal Express measures," she says, "everyone knows that the percentage of packages arriving at or before 10:30 a.m. is the make-it or break-it measure for Fed Ex's priority mail service."

Creating standards to apply to service quality measurements is more like a psychology experiment than an engineering task. Ziethaml cites an example from personal experience: "I was inadvertently a subject in a standards-setting exercise not too long ago at the airport in Raleigh/Durham, NC. As I queued up to check in, an airline employee gave me a card with the time stamped on it. I went through the queue, checked in, and as I started to walk away, another employee stopped me, stamped my card again, turned the card over and asked me to answer three questions on the back. 'How fast did I think I went through the line?' 'What did I think of the overall quality of the airline?' 'Would I fly that airline again?'"

By simply plotting and analyzing this data, she says, the airline gets a gut feel for the "right" amount of waiting time. "That's the sort of detail you need and the sort of process you have to go through."

Does all this mean that managers in service organizations should never use number of phone calls, length of conversations, shipments out the door and other such measures as management tools? Certainly not. But, as Ziethaml puts it, "You have to start with the customer's report card and work backwards to create useful measurements." Otherwise, she adds, "You risk making improvements [that can be measured], but not really affecting anything that makes a difference for the customer. You're managing the wrong things."

3. Managing Employees As Part of the Product

According to Parasuraman, employees serve different functions in service and manufacturing businesses. Factory workers are a means to an end—finished goods. But in a service business, front-line providers are ends in themselves. The consumer purchases performance from a

physician or a tax consultant or a waiter or waitress. When performance is the product, people are critical.

Professors Leonard Schlesinger and James Heskett of the Harvard Business School also believe that well-managed, successful service companies operate on a model in which human resources are a key focus. In an article in the September/October, 1991 issue of the *Harvard Business Review*, they write: "In companies that are truly customer-oriented, management has designed the business to support front-line workers' efforts and to maximize the impact of the value they create."

They argue convincingly that the employee-as-disposable-tool model, which leads to job oversimplification and idiot-proofing, is very costly to a service organization. Schlesinger and Heskett suggest a "new model" that includes these elements:

• Valuing investments in people as much as investments in technology.

• Using technology to support, not to replace, front-line people.

• Putting as much emphasis on selection and training for salesclerks and housekeepers as for managers and executives.

• Linking compensation and performance for employees at every level.

Like Parasuraman, they believe that front-line people are a service organization's "product" and make a critical difference between success and failure. They conclude by warning: "These front-of-the-house jobs cannot be done by incompetent, uncommitted workers. They require men and women who can take responsibility, manage themselves, respond well to pressure from customers—in short, the kind of people who rarely come to mind when most service managers think about candidates for front-line service jobs."

This new understanding of the human resource role in service delivery has led to an emphasis on finding and retaining quality people, training and supporting new employees, involving and empowering experienced personnel, and providing bountiful rewards and recognition for sterling performance.

The importance of the human element also means that managers must be more vigilant. It's tricky stuff. Consider the number of contacts you have with an airline's service people when you take a flight, says Parasuraman. Your experience at one stage sets your expectations for later stages. "If a ticket agent is very cordial and very personable and so forth, that can set your expectations for in-flight service at quite a high level. It might not be fair to the in-flight staff, but the customer could come away disappointed through no fault of theirs."

Thus. "manage carefully" is an important admonition. but also one that can lead managers astray. Avitar's Gebhardt worries that just talking about "service management" as a unique management practice sends the wrong message. "I'm unhappy with the [implied] paradigm. It connotes top-down management, a return to 'getting the front-line squared away.' [It implies] getting someone else to do the right thing instead of trying to involve people in the job to be done." she says. "It has the potential to go the way that too much TQM has: into a new form of 'Theory X' management. A small group of people at the top of the organization make all the decisions about what customers want to experience and how to measure it, then they shove their decisions down the hierarchy."

Overcoming "hierarchical thinking" is essential to successful service management practices, says Eberhard Scheuing. professor of marketing at the Graduate School of Business Administration of St. John's University in New York and the first president of the International Service Quality Association. "Ideally." he says, "a good service manager should be able to leave the office for a week or two and have everything run fine. That can only happen, however, when the manager has good people who know what they are doing, who are empowered and supported, who know very well what it takes to keep the shop running well."

4. Managing the Customer
One of the most distinctive attributes of

service management is the need to manage not only employees and processes but customers as well. Service organizations must find ways to manage their customers' perceptions of processes and outcomes.

A case in point is waiting time. Theme parks—like Disneyland and Walt Disney World—work hard at minimizing waiting time and minimizing the *perception* of waiting time. They do it in several ways: The lines curve to provide changes of scene and a sense of progress: sidewalk entertainment diverts customers from concentrating on the wait; and reminders are posted—"20 minutes from this sign" "10 minutes from this sign"—to let customers know how much longer they will have to wait. It helps. too. that covering the distance from the "20 minute" sign to the "10 minute" sign actually takes only seven minutes.

One of the most frequent complaints in health care is about—you guessed it— waiting time. "I had a 2 p.m. appointment and she didn't get to me until 3:30!" patients complain. A recent study in a family practice clinic found that if the doctor or other primary care provider walked into the examination room. made immediate eye contact. smiled. shook hands and touched the patient in a friendly manner (pat on the shoulder. placing the left hand on top of the handshake. and so forth). patient estimates of time spent waiting decreased by half.

Customer education and information giving are frequently used customer management techniques (see "Customer Education: Some Assembly Required." TRAINING. December 1991). For example. at Riverside Methodist Hospital in Columbus. OH. a surgery liaison relays information on operations. explains normal hospital procedures. and keeps everyone aware of how long it will be before the patient is returned to his room. Before the position was created. Riverside received an average of 22 surgery-related complaints each

ZERO DEFECTS VS. ZERO DEFECTIONS

The distinction between zero defects and zero defections outlined by Bain & Co.'s Frederick Reichheld and Harvard's W. Earl Sasser ("Zero Defections: Quality Comes to Service." *Harvard Business Review*, September/October 1990) is not as simple as it appears at first glance. Yes, both manufacturers and service providers want every customer to come back and buy again ("zero defections," in Reichheld and Sasser's terms), and both crave faultless output ("zero defects." the manufacturing quality focus). But when treated as either/or viewpoints, they put unnecessary blinders on your quality effort.

Here are 10 ways that "zero defects" differ from the "zero defections" view of quality:

ZERO DEFECTS IS ABOUT...	ZERO DEFECTIONS IS ABOUT...
Technical quality.	Customer quality.
Precise standards and performance.	Transactions that delight the customer.
Treating errors as mortal sins.	Treating errors as opportunities to excel.
Minimizing the human element.	Capitalizing on the human element.
Creating standards and protocols for every aspect of a transaction.	Standards for technical quality; empowerment and recovery strategies for customer quality.
No surprises, standard operating procedures, rote and drill.	Speed, flexibility and ability to respond reliably to unique demands.
Production quality.	Performance quality.
Developing satisfactory and mutually beneficial relationships.	Building lasting, creative customer partnerships.
Customer satisfaction.	Customer retention.
Reworking every policy and procedure to perfection; creating an absolutely seamless performance.	Experimenting, leapfrogging the competition, taking measured risks, and then learning from them.—R.Z.

month. In the 18 months that followed, it received just one complaint—and more than two dozen compliments.

In service delivery, the "fix" sometimes ●in doing a better job of managing the ●omer, not in improving the core processes or the performance of the people delivering the service.

5. Manager As Role Model

In service organizations, front-line employees attend to the rules, but watch the personal performance of their manager to define the "real" norms of the organization. If their manager takes the time to listen to customers and employees without impatience, so will they. If their manager focuses his or her energy on things that say "quality" to the customer, so will they.

"The manager has to be very visible to employees, has to set an example, has to mingle with customers and with employees," says Texas A&M's Parasuraman. "In a factory, you can lay out a set of specifications and you don't have to see the employees for hours—or even days. In service [organizations], managers have to be in constant contact with employees and customers to have a firsthand feel for what's going on."

St. John's Scheuing agrees with the leadership-by-example model, but adds a dimension. "In addition to being a role ●el," he says, "the manager has to be ●to support and guide and direct—to be both a role model and an enabler. Your employees are, after all, adults. They need leadership and trust once they understand the jobs and have acquired the right skills."

Townsend adds a question: "Too many managers see their job as getting someone else to change their behavior. I ask, 'What have you done personally to improve service quality in your organization today?' If the answer is 'I'm not personally in a position to do that,' or 'My job is to inspire and encourage,' you can be pretty sure there isn't much service quality improvement going on anywhere in the organization."

That concept is not news to managers in organizations that have earned reputations for delivering outstanding service. When Edward Crutchfield, chairman and CEO of First Union Corp. of Charlotte, NC, was asked his banking corporation's service "secret," he responded succinctly: It's no secret at all. "Service sinks in when managers think and act service, service, service, day in and day out, in obvious and ●●le ways."

STRIKING A BALANCE

Of course, we can make too much of the differences between product and service businesses. By doing so we risk needless conflict with quality mavens who subscribe to the notions of weigh, measure and chart. In fact, few marketplace offerings are "pure" services. Most are made up of a bit of product and a lot of service. And quality of service does count to automobile manufacturers and consumers, just as product-like specifications such as filling prescriptions accurately are critically important to quality health-care delivery.

So why build a case for the unique aspects of service management? In *Zen and the Art of Motorcycle Maintenance*, Robert Pirsig suggests that one of the primary barriers to quality thinking, work and outcomes is value rigidity. He tells this story to drive home his point:

In southern India, where monkey is an epicurean delight, the monkey trap is delightfully simple. It consists of a hollowed-out coconut chained to a stake. The coconut contains rice that can be grabbed through a small hole. The hole is big enough so that the monkey's hand can go in, but too small for his fist with rice in it to come out. The monkey sees the rice, reaches in, grabs it up and, suddenly, is a captive. He's not a captive of the rice or the trap or the chain or the stake, but of his own rigidity. If he opens his hand, he's free. But he can only discover that fact if he gives up rigidity and sees the rice and the coconut—and the advancing villagers intent on fresh monkey—in a different way. Letting go of the rice is a little thing, but it produces a big result.

Gaining the flexibility to look at service quality and service management just a little differently may not have the same consequences for managers that it does for that monkey. But in terms of customer satisfaction and return business, it produces big results. ▢

Ron Zemke is senior editor of TRAINING Magazine.

Appendix E:
Review Sheets

DAY 1 REVIEW

What are the <u>five most important things</u> you learned during the first day of class?

1.

2.

3.

4.

5.

DAYS 1 AND 2 REVIEW

What are the five most important things you learned during the first and second days of class that you would . . .

A.   Like to share with your manager?

        1.
        2.
        3.
        4.
        5.

B.   Like your peers to know?

        1.
        2.
        3.
        4.
        5.

C.   Remember and use yourself?

        1.
        2.
        3.
        4.
        5.

Appendix F:
Film Notes
Sheets

Film Notes ("Why Quality?")

Film Notes ("The Quality Connection")

Appendix G:
Glossary

Glossary: Our Common Quality Language

The following terms are part of our common quality language:

Culture   The basic beliefs, expectations (both formal and informal), and behaviors of a group of people.

Empowerment   Giving a person the power or authority to do certain tasks or make certain decisions.

Prevention   The proactive method of preventing errors in the first place to achieve optimal quality.

Quality   For the customer, quality is meeting customer's needs and expectations.

                    For the supplier, quality is the clear communication of needs and expectations by the customer to the supplier.

Rule of Tens   Every time an error propagates to the next step in the process, the cost to correct the error multiplies by a factor of ten.

Synergy   The sum of the parts is greater than the individual parts.

TQP   The Total Quality Process which enables us to achieve continuous improvement with the commitment of management.