GOAL/QPC Research Committee
1990 Research Report
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Total Quality Management Master Plan

An Implementation Strategy

GOAL/QPC
12B Manor Parkway
Salem, New Hampshire 03079
Phone: (603) 890-8800
FAX: (603) 870-9122
service@goalqpc.com
www.goalqpc.com

About GOAL/QPC . . .

Founded in 1978 as a nonprofit organization, GOAL/QPC grew from a regional effort to expand jobs in northeastern Massachusetts to an international leader in studying and teaching a business transformation process. GOAL/QPC leads the way by helping hundreds of companies (including many of the Fortune 500) through its research, publications, training, and consultations.

In 1988, GOAL/QPC invited 20 U.S. companies to participate in a Sustaining Members' Research Committee that would meet quarterly to study and discuss "leading edge" concepts, methodologies, and processes for the improvement of quality, productivity, and competitiveness. During 1987-90, the Sustaining Members' Research Committee operated with five Research Teams:

Cultural Change and Integration of Plans
Daily Control
Cross-Functional Management
TQM for Cost Reduction
Benchmarking

This research report is a product of the Cultural Change and Integration of Plans Team.

Team members:

Gary Floss	Control Data
Tom Lynch	Eastman Kodak
Jim Naughton	Expert Knowledge Systems
Joe Colletti	GOAL/QPC
Bob King	GOAL/QPC
Gene Miller	Goodyear Tire and Rubber
Pamela Olivier	Intel Corporation
Andre Shambarger	McDonnell Douglas
Bob Allison	Procter & Gamble
Tom Flaherty	Rockwell International
Mark Finster	University of Wisconsin
Ken Karch	Weyerhaeuser
Mark Shimelonis	Xerox Corporation

Executive Summary

Total Quality Management Master Plan: An Implementation Strategy

What is TQM?

- **Structured Management System**

Total Quality Management (TQM) is a structured system for meeting and exceeding customer needs and expectations by creating organization-wide participation in the planning and implementation of breakthrough and continuous improvement processes. It integrates with the business plan of the organization and can positively influence customer satisfaction and marketshare growth. It is also a system of management and a way of working, not a program that an organization simply sets in motion and then walks away from. It is not Statistical Process Control (SPC), project teams, employee involvement, or Quality Control. It is a discrete form of organizational management that encompasses all levels of the organization in a focused and ongoing effort to provide products and services that satisfy customer demands. TQM is also unique because it is a system that is applicable across a wide variety of business sectors and functions.

Why TQM?

- **Meeting Future Competition**

The 1990s will be a decade of intensified competition. A major characteristic that will distinguish those organizations that are successful will be total product and service quality. This means that products/services do more than meet customer needs. It means that they are produced and/or provided in a continuously improving, more timely, cost-effective, and productive manner.

From an international perspective, many organizations currently hold a significant lead over U.S. organizations in TQM development. This is reflected clearly in the indisputable economic success and strength of those businesses that promote and foster TQM as a standard mode of operation. The question for American organizations is not an argument over the merits of TQM, but rather how to implement it in a most effective and timely manner.

Why a Master Plan?

- **TQM involves significant organizational focus**

TQM represents a substantial change in organization and management philosophy for most American organizations. Simply "deciding to do it" and "understanding it" are not enough to create the management systems that are required to launch and sustain a TQM effort. Insight alone does not produce change. As in any other type of major undertaking, an organization needs a plan to implement TQM. The scale, scope, and magnitude of the organizational changes to bring about and that are brought about by TQM implementation require a Master Plan that is developed, directed, and supported by the highest levels in the organization. This planning is not just focused on products and services but also linked to the processes by which those products and services are fabricated and delivered.

GOAL/QPC Synthesis

- **Synthesis of approaches**

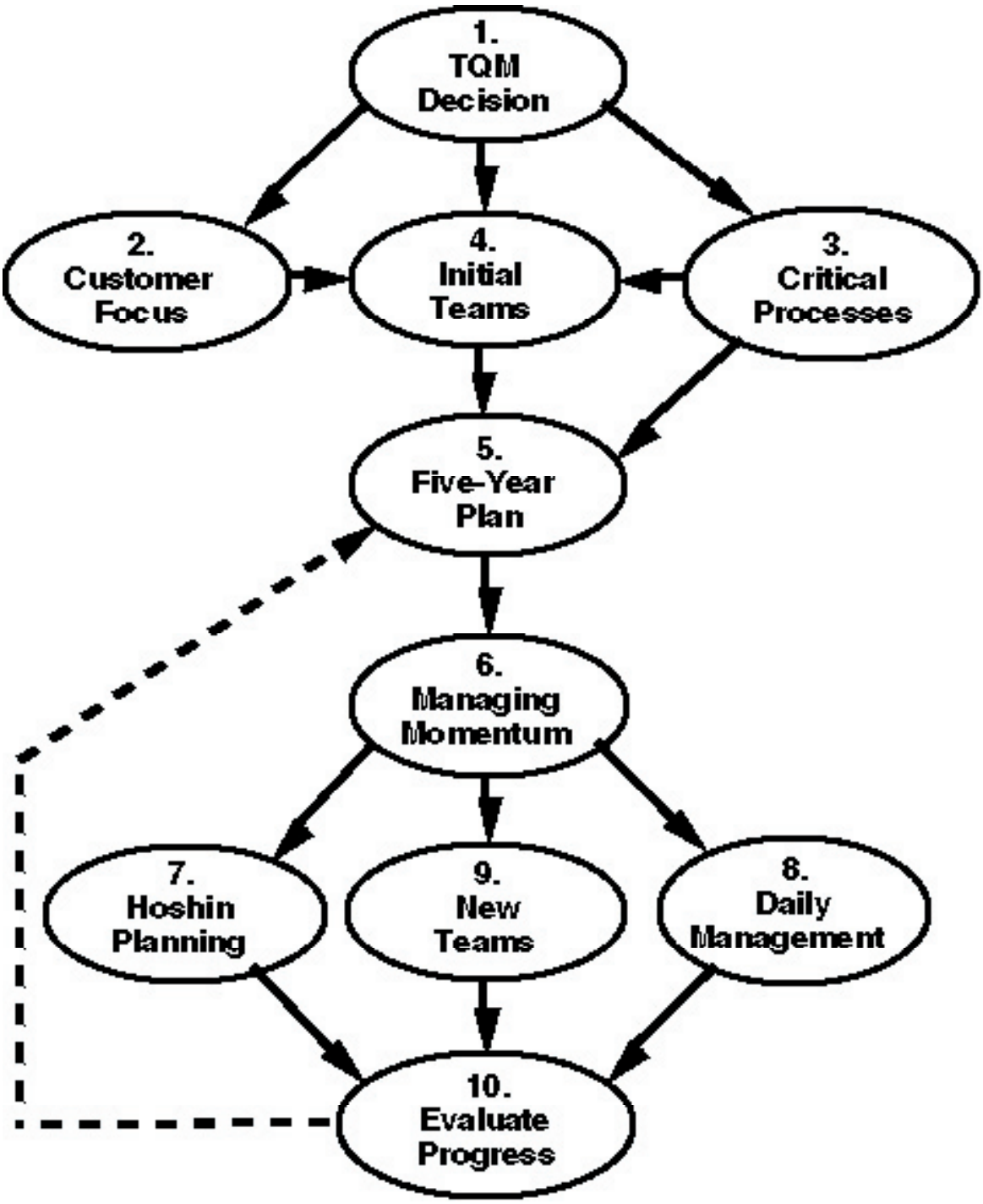
There are a variety of different strategies/plans being used by U.S. organizations to implement TQM. These range from the "Guru" approach, which takes the philosophy of a leading quality thinker and uses it as a benchmark to determine where the organization needs to change and improve, to the "Prize Criteria" approach within which the criteria of the Deming Prize or the Baldrige Award are used to identify "gaps" in the organization's operations that are then targeted for focused improvement efforts.

From observation and direct experience with companies implementing TQM, as well as an analysis and critique of the TQM implementation strategies noted above, a Ten-Element Model for TQM implementation can be constructed. This model is a generic collection of critical elements that have been found to be effective in a wide variety of businesses and organizations. While specific applications might vary from organization to organization, the Ten-Element Model represents a working model that can be used as a guide and frame of reference by organizations wishing to launch and sustain TQM.

The Ten-Element Model is outlined in the following diagram:

The Ten-Element Model begins with the development of top management com-

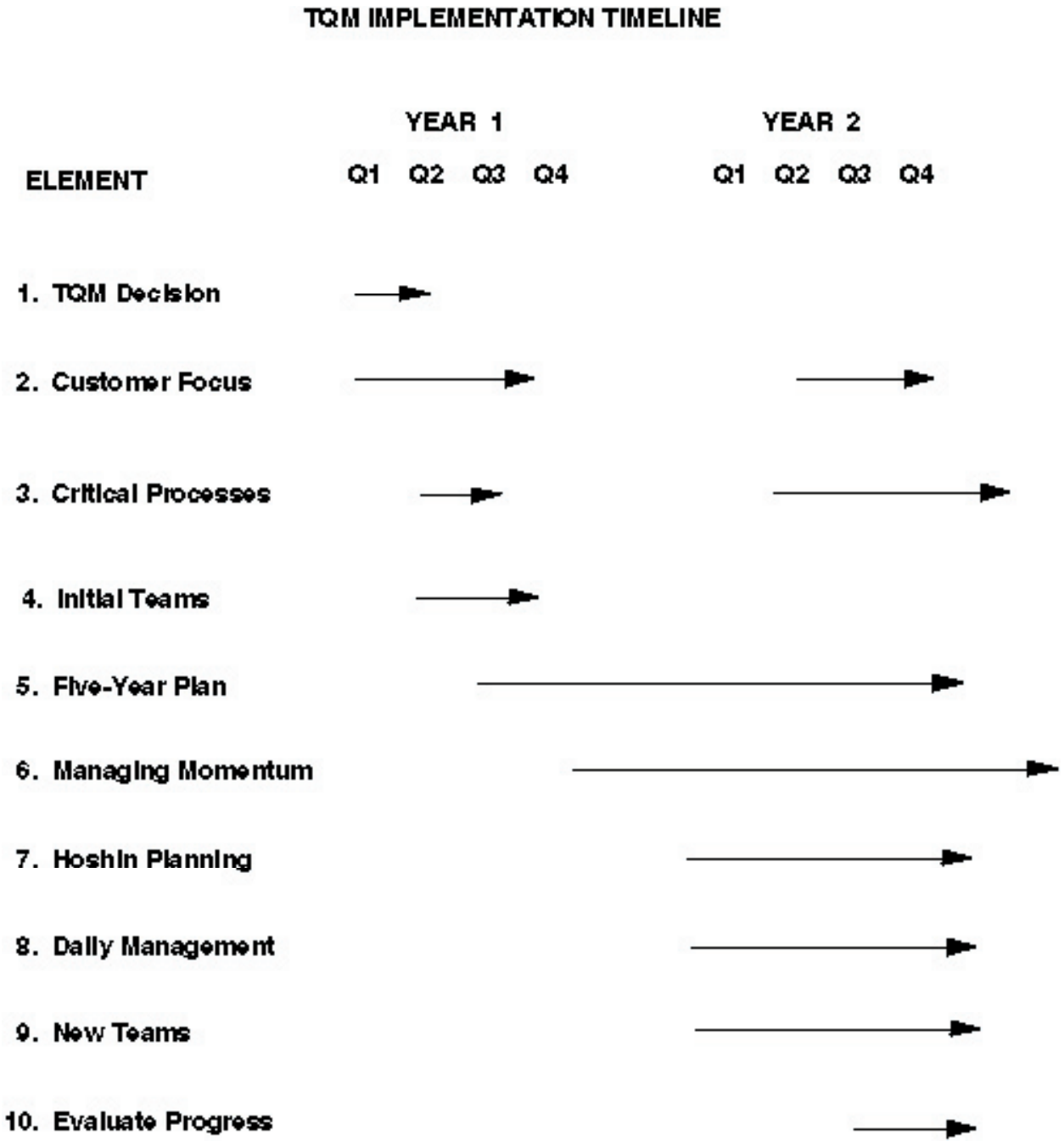
TEN ELEMENTS OF TOTAL QUALITY MANAGEMENT IMPLEMENTATION MODEL



mitment, support, and direction for TQM implementation. The second Element, Understanding the Customer, identifies and organizes customer needs and establishes how the organization will meet those needs. Next, the leadership of the organization takes a detailed Review of the Critical Processes (Element # 3) that drive the organization in its efforts to meet the needs of its customers. Concurrently, Element # 4, the formation of Initial Pilot Project Teams, not only provides the opportunity to resolve "burning issues" but also serves primarily to help management assess the magnitude of resource, time, and management involvement required by a TQM process on a small scale. In Element # 5, Assessment and Breakthrough Plan, the organization sets a plan for strategic breakthrough based on an assessment of its vision, customer demands, its critical processes, and the requirements for improvement. Next, the organization "Manages TQM Momentum" in Element # 6. This is done through continued customer assessment, ongoing selection of improvement projects, the increasing involvement of all levels of management, and the monitoring/response to the social/human impact of change in the organization. Individual Manager Breakthrough Contributions (Element # 7), Daily Process Management (Element # 8), and New Functional/Cross-Functional Teams (Element # 9), are done concurrently to capture and integrate the benefits of individual and cross-functional group TQM activity. The final Element in the model focuses on an Audit/Review of Progress and the incorporation of improvements and "lessons learned" into the plan for future years.

These Elements would be implemented over a two-year timetable with several of

the Elements being addressed concurrently:
Next Steps



The Ten-Element Model is not a "magic pill" approach to TQM implementation. It represents and requires long-term management focus and attention. But experience has proven that positive results in productivity and cost reduction do occur even before TQM is fully implemented and even if it is done imperfectly. In an economic environment within which organizational resources and time are growing more scarce, there is a clear urgency to focus energy and resources in a specific, planned direction for ongoing improvement rather than to squander them on the latest "fad of the month" or the newest seductive "quick fix." TQM is and will continue to be an unquestioned key to competitive advantage in the future. For those organizations that can look to the future, TQM implementation is no longer a matter of choice.

Total Quality Management Master Plan:

An Implementation Strategy

Part One: Introduction and Background

What is TQM?

Total Quality Management (TQM) is a structured system for meeting and exceeding customer needs and expectations by creating organization-wide participation in the planning and implementation of breakthrough and continuous improvement processes. It integrates with the business plan of the organization and can positively influence customer satisfaction and marketshare growth. It is also a system of management and a way of working, not a program that an organization simply sets in motion and then walks away from. It is not Statistical Process Control (SPC), project teams, employee involvement, or Quality Control. It is a discrete form of organizational management that encompasses all levels of the organization in a focused and ongoing effort to provide products and services that satisfy customer demands. TQM is also unique because it is a system that is applicable across a wide variety of business sectors and functions.

Why TQM?

The 1990s will be a decade of intensified competition. A major characteristic that will distinguish those organizations that are successful will be total product and service quality. This means that products/services do more than meet customer needs. It means that they are produced and/or provided in a continuously improving, more timely, cost-effective, and productive manner.

From an international perspective, many organizations currently hold a significant lead over U.S. organizations in TQM development. This is reflected clearly in the indisputable economic success and strength of those businesses that promote and foster TQM as a standard mode of operation. The question for American organizations is not an argument over the merits of TQM, but rather how to implement it in a most effective and timely manner.

Why a Master Plan?

TQM represents a substantial change in organization and management philosophy for most American organizations. Simply "deciding to do it" and "understanding it" are not enough to create the management systems that are required to launch and sustain a TQM effort. Insight alone does not produce change. As in any other type of major undertaking, an organization needs a plan to implement TQM. The scale, scope, and magnitude of the organizational changes to bring about and that are brought about by TQM implementation require a Master Plan that is developed, directed, and supported by the highest levels in the organization. This planning is not just focused on products and services but also linked to the processes by which those products and services are fabricated and delivered.

Implementation Strategies

There are five different strategies/plans being used by U.S. organizations to implement TQM. They are as follows:

Strategy #1: The TQM Element Approach. This approach takes key systems, organizations, and tools of TQM and begins work on them. This method was widely used in the early 1980s by companies that tried to implement parts of TQM as they learned them. Examples of this approach included use of specific elements such as Quality Circles, Statistical Process Control, Taguchi Methods, and Quality Function Deployment.

Strategy #2: The Guru Approach. This method takes the teachings and writings of one of the leading quality thinkers and uses them as a benchmark to determine where the organization has deficiencies and then to begin to make appropriate changes to remedy those deficiencies. For example, managers would attend Dr. W. Edwards Deming's courses and study his "Fourteen Points." They would then go to work on implementing them.

Strategy #3: The Company Model Approach. In this approach individuals or organizational teams would visit U.S. companies that were taking a leadership role in TQM and determine what successes they had and how they had accomplished them. The individuals or teams would then integrate these ideas with their own and thus develop their own organizational model which would be adapted for their specific organization. This method was used widely in the late 1980s and is exemplified by the initial winners of the Baldrige National Quality Award.

Strategy #4: The Japanese Total Quality Approach. Organizations utilizing this method take a look at the detailed implementation techniques and strategies employed by Deming Prize-winning companies and use this experience as a way to develop a five-year Master Plan for in-house use. This approach was used by Florida Power and Light to implement TQM and successfully challenge the Deming Prize.

Strategy #5: The Prize Criteria Approach. Using this model, an organization uses the criteria of the Deming Prize or the Baldrige Award to identify areas for im-

provement. TQM implementation under this approach is focused on Prize criteria benchmarks. This approach is being used by hundreds of organizations as the 1990s begin.

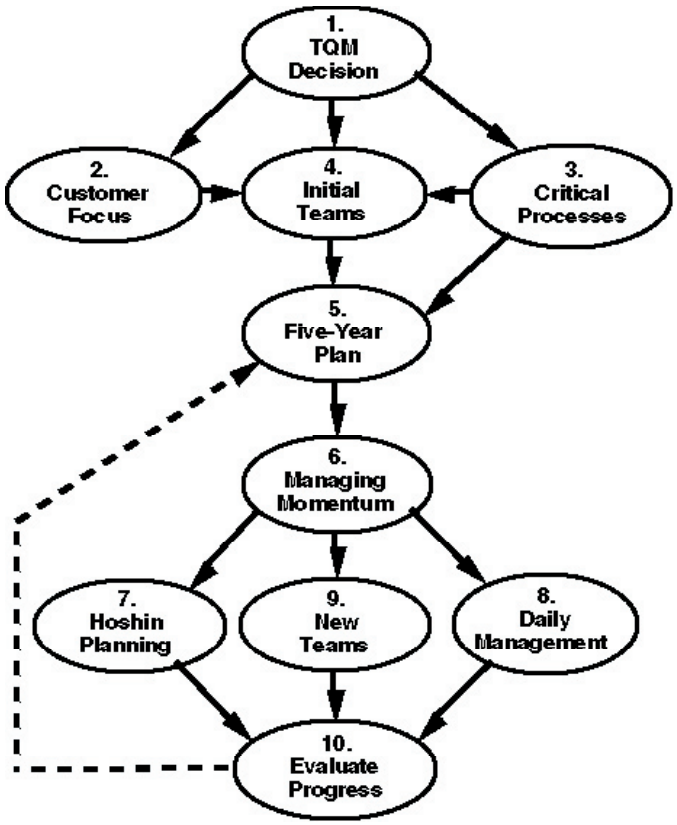
GOAL/QPC Synthesis

From observation and direct experience with companies implementing TQM, as well as an analysis and critique of the five TQM implementation strategies noted above, a Ten-Element Model for TQM implementation can be constructed. This model is a generic collection of critical elements that have been found to be effective in a wide variety of businesses and organizations. Whereas specific applications might vary from organization to organization, the Ten-Element Model represents a working model that can be used as a guide and frame of reference by organizations wishing to launch and sustain TQM.

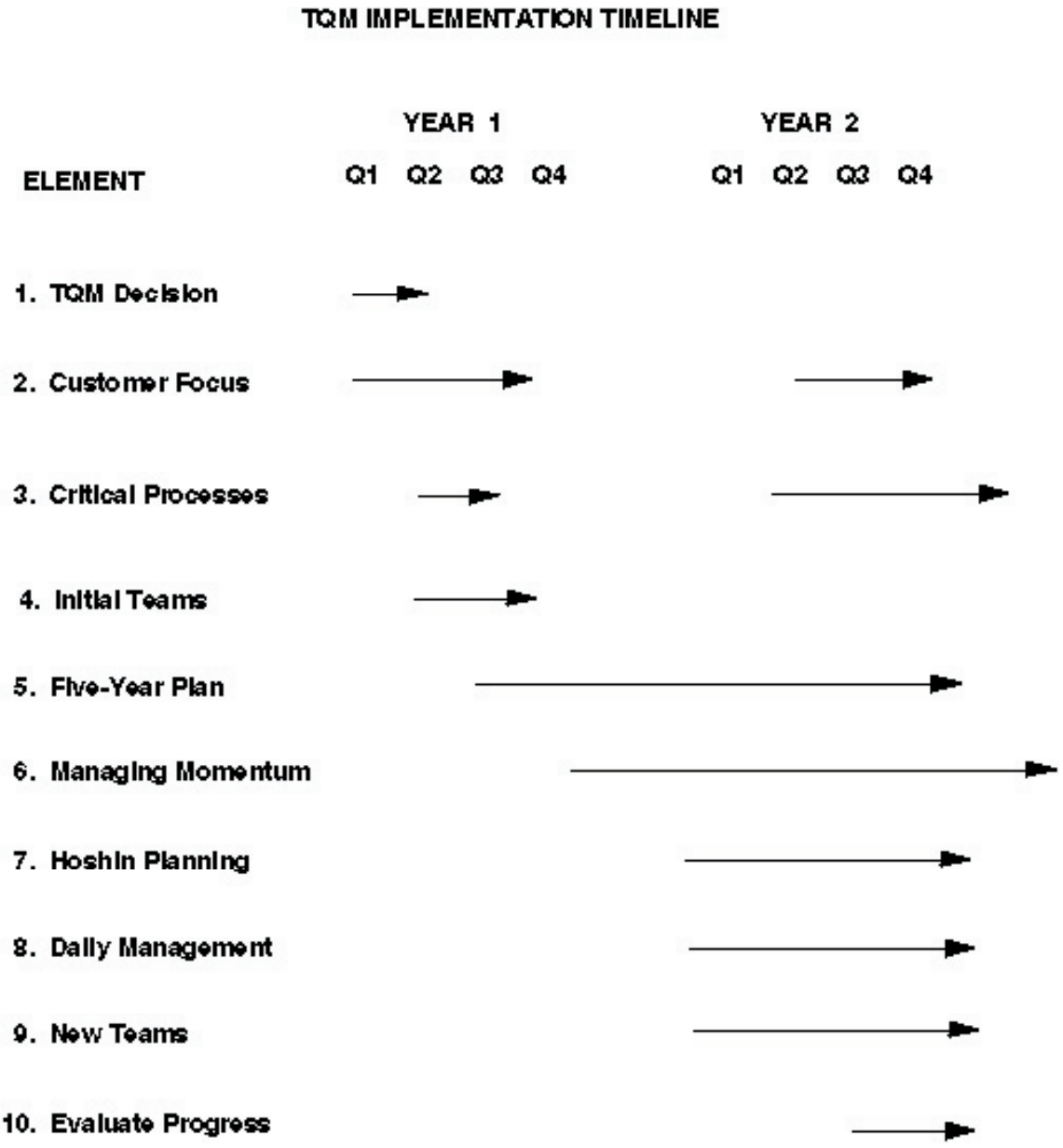
The Ten-Element Model is outlined in the following diagram:

The Ten-Element Model implementation is illustrated below in a framework that describes what the sequence and timing for implementation might be for the first two years:

Part Two: The Ten-Element Model



As noted in the introduction, there are ten Elements in the TQM implementation sequence. In this section each of the Elements will be reviewed in detail through an



analysis of (1) what is the purpose of the Element, (2) what steps need to be achieved to accomplish the Element, (3) what means are available to reach each specific target, and (4) some barriers and caveats to watch out for.

ELEMENT # 1: TOP GROUP DECIDES TO EXPLORE TQM

Purpose

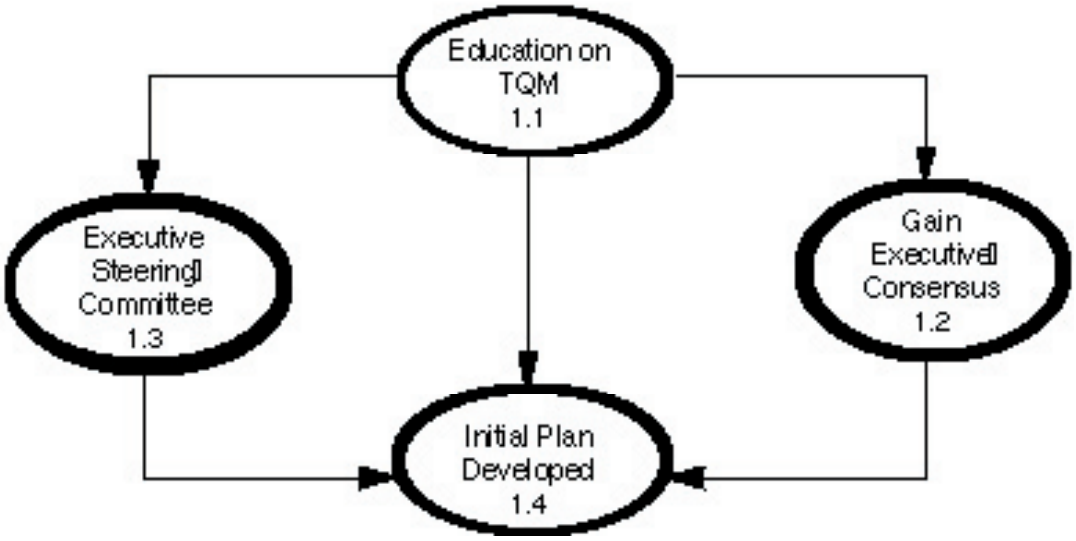
The purpose of this Element is to provide a "critical mass" of top management understanding, support, and implication awareness for TQM implementation. Sometimes this Element is initiated because of the positive results potential of a quality vision, but most often represents an acknowledgement of an urgent need to respond to the major challenges faced by an organization, such as lost market share, unhappy customers, declining revenues, and low employee morale.

Four main steps have been identified as pivotal in an executive group's determining the scope and depth of an organization's commitment to TQM. These steps are:

1. Education on TQM and the Need to Change
2. Gaining Executive Consensus
3. Formation of an Executive Steering Committee
4. Development of Initial Plan of Action

These first steps are critical in the implementation process. Management not only comes to understand what TQM is and what it involves but at the same time it builds internal commitment through the exposure to and participation in the TQM pro-

The sequence for acquisition of these steps is as follows:



cess itself.

STEP 1.1: EDUCATION ON TQM AND THE NEED TO CHANGE

TQM is not just another fad or program. It ultimately will, in most organizations, require significant changes in operating management philosophy and behaviors. There-

fore it is critical, before any implementation of TQM is attempted, that the executive staff becomes cognizant of what the dimensions of TQM are and what impact it has on management styles and the focus of organizational energy, time, and resource allocations. Recognition of the need and motivation for changes required by a TQM effort can come from feedback generated by a variety of sources. These include but are not limited to:

- A review of financial projections on profitability/growth
- A review of business trends
- Competitive analysis and benchmarking
- Market trends and requirements
- Market share growth/protection analysis
- Customer demands and satisfaction analysis

Chart 1.1 outlines the means by which this target can be achieved:

STEP 1.2: CREATION OF AN EXECUTIVE STEERING COMMITTEE

The creation of an Executive Steering Committee (ESC) establishes a high level management group whose charter and focus is to guide the implementation and ongo-

CHART 1.1: Education on TQM and the Need to Change

STEP / MEANS	TOOLS	RESULTS
Education on TQM		
• Attend TQM Courses by TQM Experts	• Courses/Videos	• Exec. Staff Sees Change as Necessary
• Read Key TQM Books	• Surveys of Industry Trends	• Areas of Changes Necessary Are Identified
• Visit Organizations Recognized for TQM	• Competitive Analyses	• Executive Staff Perceives TQM as a Means for Achieving Advantage
• Competitive Benchmarking	• Benchmarking Tools	
• Consumer Research	• TQM Education	
	• Prize Criteria Analysis	
	• Meetings to Discuss TQM and its Implications	

ing direction of the TQM process. In this manner it is ensured that TQM will receive the attention, focused support, and participation of the highest management level in the organization. The ESC concentrates on the following issues:

- Development and maintenance of the ESC organization/charter
- Identification of key breakthrough areas (Hoshin)
- Education and training on TQM for the organization
- TQM communication and motivation/reward systems
- Identification of major organizational problems or "burning issues"
- Coordination of TQM implementation sequence down through the organization
- Identification of systems to capture gains achieved through TQM process
- Monitoring of methods for control of quality process (Daily Process Mgt.)
- Collection, analysis, and dissemination of TQM results
- Adaptation of TQM results into ongoing plan

This Steering Committee also has the following responsibilities:

1. Guide and direct the initial implementation of TQM
2. Maintain constancy of purpose to the TQM process despite short-term crises
3. Maintain focus of TQM efforts on quality first, not profit
4. Ensure appropriate resource allocation and support for TQM
5. Help clarify and maximize the role of each level of management in TQM development
6. Establish systems and activities for interdepartmental resolution of problems and to achieve common goals
7. Ensure that TQM process is continually focused and does not become a paperwork factory

Chart 1.2 outlines the means by which this step can be achieved.

The formation of the ESC begins the in-house effort to review the available models for improving quality. Site visits to other organizations that have implemented TQM cannot only create a forum for education on TQM from peers and respected business leaders but also can be most helpful in developing the structure, configuration, and role

CHART 1.2: Formation of an Executive Steering Committee

STEP / MEANS	TOOLS	RESULTS
Executive Steering Committee Formed • Initial Investigations of ESC Options • ESC Role Definition • ESC Members Selected	• Brainstorming • TQM Site Visits • 7 MP Tools • TQM Education	• Commitment to TQM is Strong • Pace of Change is Directed • Key Management Supports TQM

of the ESC itself.

STEP 1.3: GAINING EXECUTIVE STAFF CONSENSUS ON TQM

Unless there is a unified focus and perspective at the top of the organization, any TQM implementation will be limited to only those areas in which there is high-level support and will break down when TQM issues, projects, and investigations cross functional lines. The consensus generated at this Element helps align expectations and the management of the tasks ahead. The means to achieve this consensus are outlined in Chart 1.3:

STEP 1.4: DEVELOPMENT OF INITIAL PLAN

CHART 1.3: Gaining Executive Staff Consensus

STEP / MEANS	TOOLS	RESULTS
Executive Staff Consensus • Reviews of Education and Site Visits • Establishment of "Common Ground" Principles/Guidelines • Focused Discussion Mtgs. on TQM Acceptance	• 7 MP Tools • Prize Criteria • TQM Education	• Common Awareness and Commitment to New Direction

Based on the achievement of the above steps, the executive staff is now in a position to make a decision and then a plan for TQM implementation. This decision is made in the context of clear CEO leadership and the shared TQM awareness and understanding of the executive staff. This "initial" plan is based on the knowledge gained from executive education and the site visits. Its specific "roll-out" form is usually an adaptation of other plans and criteria found to be successful in similar organizations. This first plan is accordingly general in scope and content because the organization usually lacks the experience in managing the requirements of TQM, feedback from customers and competitive data — the acquisition of which in a later Element will allow for the detailed iterations of each Master Plan Element.

Chart 1.4 summarizes the means used to achieve this step:

BARRIERS/CAVEATS FOR ELEMENT #1

- Keep efforts simple and clear. Don't get tangled in complexity right away.

CHART 1.4: Development of the Initial Plan

STEP / MEANS	TOOLS	RESULTS
• Develop Initial Plan • Identify Major "Burning Issues" • Review of Other Organizations' TQM Plans/Criteria Options • Outline of Major Criteria for Plan • Organize Sequence of Actions • Formulate Plan	• Outlines of Strategies Used by Other Organizations • 7 MP Tools • Prize Checklists	• Personal Involvement of CEO and Staff as Initial Plan is Developed • An Initial Plan is Formulated and Engaged

- Go slowly so as not to underestimate what is involved.
- Don't make a premature decision to proceed with TQM without consensus.
- Management leadership must be constant, visible, and consistent.
- Top management should have a reasonable understanding of TQM principles before proceeding with implementation.
- Top management learns by doing in this Element. Do not delegate to staff except for technical or facilitation assistance.
- Remember that Element #1 is a decision to EXPLORE whether the organization wants to pursue TQM.
- Education is a first step in changing the mind-sets at the highest levels of the organization.
- The charter here is to begin to develop the principles and values that are part of a TQM effort.

ELEMENT #2: CUSTOMER FOCUS

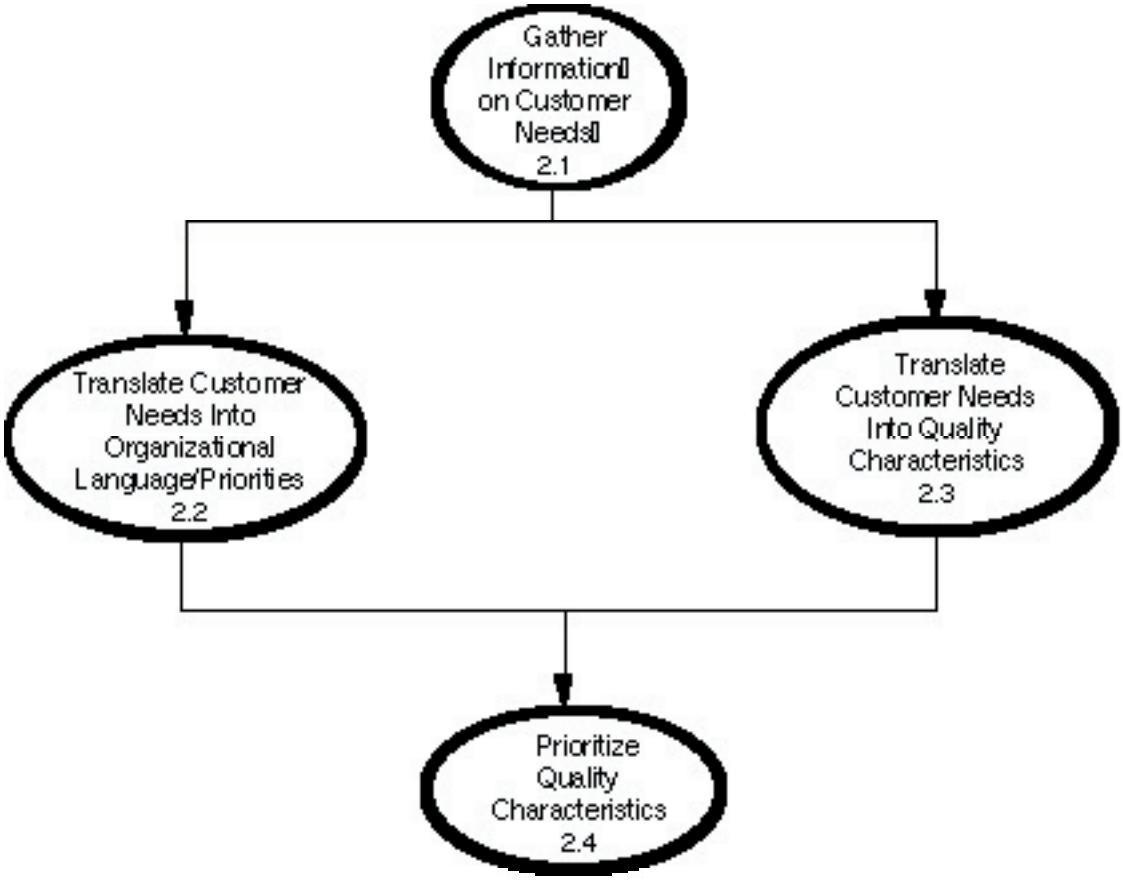
PURPOSE

The organization now utilizes an organized system to identify and prioritize customer demands and then align an organization's products/services to meet those priorities. To do this it uses adaptations of Quality Function Deployment (QFD), a strategic tool in which the voice of the customer is captured in a series of matrices that facilitate the analysis of product/service quality characteristics, costs, reliability, and the use of new concepts and technologies for improvement in light of customer requirements. The purpose of this Element therefore is to ensure that TQM efforts are customer-focused and aligned. Normally QFD is conducted by a specific team designated by the ESC.

The sequence of targets to achieve this Element is as follows:

STEP 2.1: GATHER INFORMATION ON CUSTOMER NEEDS

The discipline of listening to the customer is developed in many forms in the first part of Quality Function Deployment (QFD). All appropriate vehicles which bring



the customer's voice to the organization are reviewed: surveys, market research, focus groups, complaint analysis, etc. The Kano survey method is one new technique that enables an organization to identify the opportunities to focus ahead for exciting quality that would distance the organization well ahead of its competitors. The QFD team uses this data as the basis for its QFD analysis.

STEP 2.2: TRANSLATE CUSTOMER NEEDS INTO COMPANY PRIORITIES

The QFD team uses the data generated in 2.1 to understand and interpret the customer's needs and desires through a translation of the customer voice into customer pri-

CHART 2.1: Gather Customer Information

STEP / MEANS	TOOLS	RESULTS
Gather Customer Information		
• Survey Existing Customers	• Complaint Analyses	• Customer's Voice Is Captured
• Survey Non-Customers	• Focus Groups	• Strategic Advantage Gained from Understanding Non-Customers
• Identify "Exciting Quality" Opportunities	• Comparative Studies	
• Team Organizes "Customer Demands" Into Related Groupings	• Kano Survey	• Strategic Advantage Gained from Identifying "Exciting Quality"
	• 7 MP Tools	
	• Education on QFD Techniques	

orities, current satisfaction of those customer demands by the organization, an analysis of how well competitors satisfy those same customer demands, and an analysis of the level of improvement required based on the competitive analysis and the opportunities for exciting quality. The team uses the "A-1" QFD matrix ("House of Quality") as a guide in this process. Care must be taken at this point in the process to ensure that the customer's voice is being heard and is not being distorted by the "blinders" of current offerings, programs, and facilities. Chart 2.2 summarizes these activities:

STEP 2.3: TRANSLATE CUSTOMER NEEDS INTO PRODUCT/SERVICE QUALITY CHARACTERISTICS

Quality characteristics represent "how" an organization measures or controls

CHART 2.2: Translating Customer Needs

STEP / MEANS	TOOLS	RESULTS
Translating Customer Needs • Review the Importance of Each Customer Demand to the Customer • Identify Level at Which Each Customer Demand Is Currently Satisfied by the Organization • Identify Level at Which Competitors Currently Satisfy Each Customer Demand • Seek Areas for "Exciting Quality" • Based on the Competitive Analysis Above, Determine Level at Which the Organization Must Meet Customer Demands to be Competitive • Confirm Customer Demands for Validity	• QFD Matrices • 7 MP Tools • Meetings With Customer to Review Charts/Data for Validity Check	• Customer Demands Are Understood • Areas for Organization Focus for Improvement Are Identified

the characteristics of its product/service to meet or exceed customer demands. These "characteristics" are attributes of the product or service that directly relate to the quality required by the customer demands. For example, a customer of a service organization might demand "timely response." A quality characteristic that the organization could control or measure to meet this demand would be "processing time" or "time until call-back." It is important to define the quality characteristics of a product or service because that definition will help to focus attention on product/service elements that significantly contribute to customer satisfaction. If product/service development is not substantiated in this manner, an organization can easily fall into the trap of generating functional or new technology improvements that do not result in competitive gains. Chart 2.3 summarizes this.

STEP 2.4: PRIORITIZE QUALITY CHARACTERISTICS

In this part of the QFD process, the team examines the quality characteristics, competitive analysis, and the customer demands generated in the previous steps. As-

CHART 2.3: Translate Customer Needs Into Quality Characteristics

STEP / MEANS	TOOLS	RESULTS
Develop Quality Characteristics • Team Reviews Each Customer Demand from Chart 2.2 and Identifies Quality Characteristics that Relate to Each Demand • Team Sorts and Groups Quality Characteristics	• A-1 QFD Chart • 7 MP Tools	• Customer Demands Are Converted Into Measurable Control Items

sumptions are questioned and documentation is reviewed by the team. Using the A-1 chart, the team identifies the priorities among the quality characteristics and can then recommend areas for future product/service improvement and development. Within this QFD experience there are both process and content learnings on the part of the team involved. Participants often are amazed at how little they know about their customers and their own products/services. The deepening of this knowledge serves as an excellent base from which product/service decisions can more readily be made. As a side benefit, all the tools and matrices used in this process provide documentation and traceability on all of the recommendations that are made. Chart 2.4 summarizes the means for this target.

BARRIERS/CAVEATS FOR ELEMENT # 2

- Don't ignore existing data and tools (e.g., surveys, focus group data). They may save the organization time and money.

CHART 2.4: Prioritize Quality Characteristics

STEP / MEANS	TOOLS	RESULTS
Prioritize Characteristics • Team Reviews Relationship Between Customer Demands and Quality Characteristics • Team Identifies Quality Characteristics with the Highest Priorities in Light of Customer Demands • Using this Analysis and the Perspective Gained from Other QFD Charts, the Team Makes its Recommendation	• A-1 QFD Chart • Other QFD Matrices • 7 MP Tools	• Decisions On Priorities Are Documented • Methods for Determining Priorities Are Documented

- Be sure it is the voice of the customer that you capture — not your own.

- Initial QFD information may be incomplete or have gaps. Do not let this limit the application of the tool. Understanding the voice of the customer is an ongoing process.

ELEMENT #3: CRITICAL PROCESSES

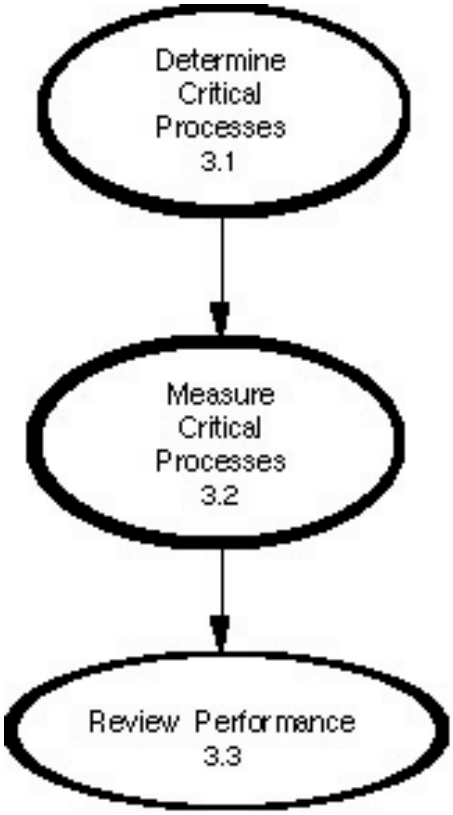
Understanding the customer's needs and expectations in Element 3 is the first step in building a Daily Control System which both prescribes and provides the mechanism for monitoring the key processes and systems of the organization. In this Element,

the leadership of the organization lists and identifies the few vital processes through which the organization meets its customer's needs on a consistent basis. These critical processes respond to the needs of both internal and external customers alike and tend to be stable over time. The result of this effort is that the organization identifies those processes by which it can track and measure how well the organization is meeting the needs of its customers.

Beginning with the top management of the organization and ultimately cascading down through the organization, the determination of critical processes follows the same processes:

STEP 3.1: DETERMINATION OF CRITICAL PROCESSES

With knowledge of the internal and external customers and their needs, the executive staff begins to identify "critical processes" within the organization. Beginning with the executive level, each individual is asked to identify the 6-10 processes which



he/she performs which make up his/her job. These should be processes which are performed repeatedly, help fulfill the mission, and help fulfill customer needs. Once each executive identifies his/her critical process, all personnel directly reporting to that executive complete their own critical process chart. This process "cascades" through the organization, so each individual knows the key processes of his/her manager, and can see how his/her own processes feed up through the organization. This cascade can also help identify and relate the strategic goals and objectives of the organization down through all working areas, for clarification of responsibilities and assistance in separating "self-generated" job duties from those central and critical to the job position.

STEP 3.2: MEASUREMENT OF CRITICAL PROCESSES

Once critical processes have been identified, each member of the executive staff must identify a method for tracking his/her performance supporting each critical process. While an organization might choose to begin with measuring one critical process, over time a measure for each of the 6-10 critical processes would be developed.

CHART 3.1: Determination of Critical Processes

STEP / MEANS	TOOLS	RESULTS
Determine Critical Processes • Identify Customers and Customers' Needs from Customer Focus Step • Identify "Top Ten" Processes Through Which Customer Needs Are Met	• Flow Chart • Interviews • Management Review • Critical Process Cascade • Affinity of Critical Processes • I.D. of Critical Processes	• Understanding and Agreement About Processes • Understanding and Agreement About Responsibilities and Job • Identification of Key Processes Not Assigned/Supported • Integration of Customer and Critical Process Knowledge With Strategic Plan

Once consensus is reached on a measure, identification of an existing data source or creation of a new data source to track this measure is begun. The data thus generated is tracked and graphed for visual review of the ongoing process and progress.

STEP 3.3: REVIEW OF PERFORMANCE

As the tracking of measures of contribution toward critical processes begins, management provides a forum to monitor and share this information. Monthly or quarterly review meetings can help to positively focus efforts to contribute to critical processes, but great skill must be used to "drive out fear" as these measures are shared.

CHART 3.2: Measurement of Critical Processes

STEP / MEANS	TOOLS	RESULTS
Measurement of Critical Processes • Choose One Measure or Indicator of the "Health" of Process • Graph the Measure Over Time	• Individual and Group Brainstorming • Customer/Supplier Review	• Agreement On One Measure Per Critical Process • Identify Existing Or New Data Sources For Measure • Begin Data Gathering and Tracking

If the graphs do not indicate an acceptable level of performance toward critical processes of the department, and a pattern of group performance emerges, the knowledge about the process can become an improvement mission statement for project teams. Again, the focus must be upon managing and proactively using the information, not to target weak individual performance, but to put group strength to work for the success of the entire organization.

BARRIERS AND CAVEATS FOR ELEMENT #3

- Expect a great deal of discussion/disagreement in the identification of these processes.

CHART 3.3: Review Performance

STEP / MEANS	TOOLS	RESULTS
Review Contributions Toward Critical Process • Begin Group Review of Measures In Key Process Areas • Teams to Improve • Establish Baseline Knowledge of Processes Which Are Not Performing at an Acceptable Level	• Flag Chart • Management Review	• Improve Focus and Knowledge About Performance In Critical Process Areas • Provide Forum for Group Knowledge About Performance • Develop Missions For Teams Which Address Critical Process Issues

- Look for correlations between critical processes at the highest levels of the organization and the organization's strategic objectives.

- Expect strong resistance to setting measurements on critical processes.

- Expect strong resistance to "taking the time" for regular critical process review sessions.

- Be sure to tie in critical process linkages vertically through the organization and give visibility to those linkages.

ELEMENT # 4: INITIAL PILOT PROJECT TEAMS

Purpose

The purpose in piloting project teams at this phase of TQM implementation is to provide the organization with small, observable team activities that will serve as a learning base from which the organization's leadership can begin to analyze the scope and breadth of TQM implications for their organizations. Not only will these teams

produce visible results, but they will also bring to light the requirements of time, energy, organization resources, management focus, and management style that are part of the "load" that TQM will put on the organization. The number and sequence of team activities undertaken at this early stage should reflect the nature and strategy of top management's initial plan. It is not uncommon to have an organization begin its TQM implementation efforts with several small pilot projects.

The initial plan developed in Element 1 usually calls for the piloting of project teams focused on "burning issues" that have the following characteristics:

- Project assignments address significant issues with the potential for high gains and a high probability for success.

- Management agrees that this is an important problem area/process which needs improvement.

- The problem/process is not currently being changed by another group or management.

- The problem/process is very important to the organization's customers and has high visibility within the organization.

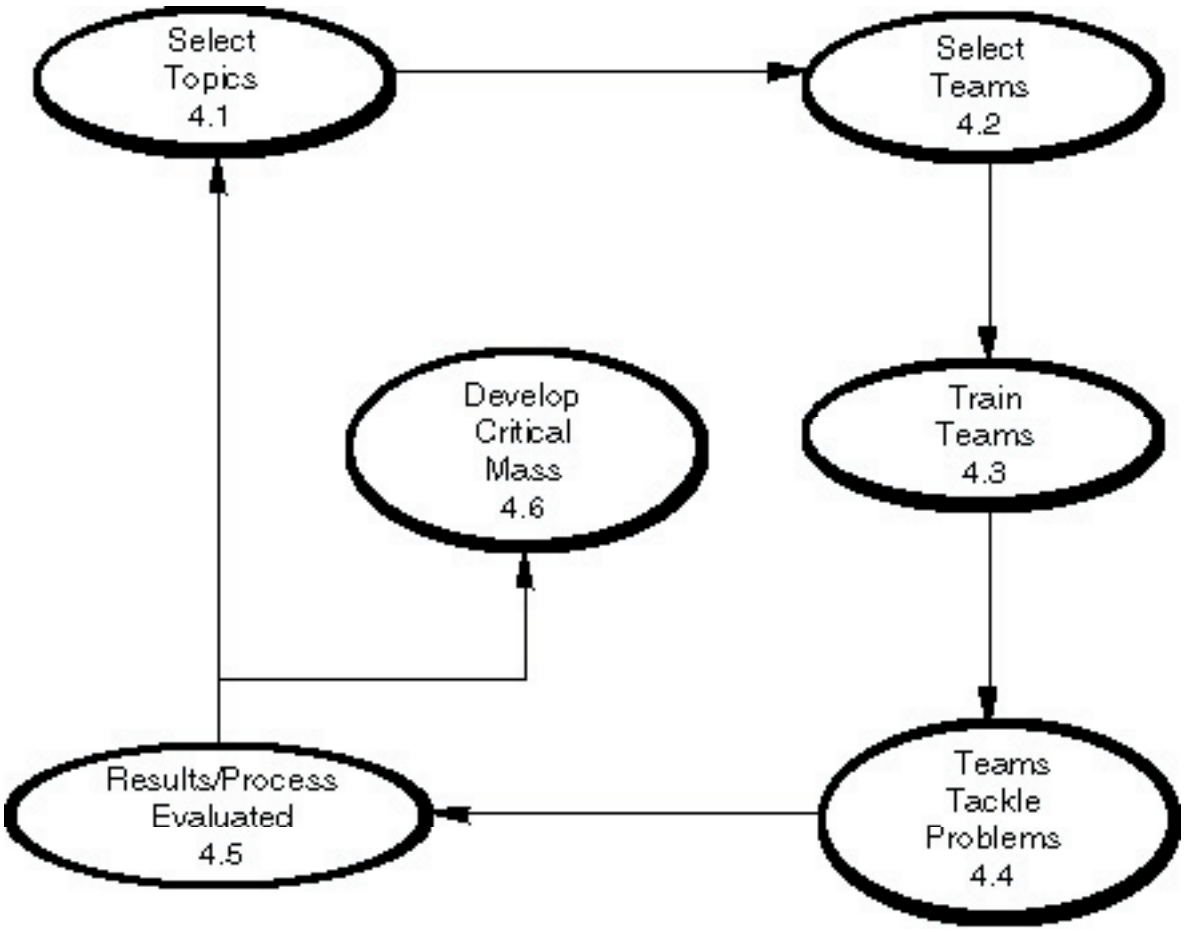
- There is a relatively short life cycle to the problem/process.

Issues and problems with the kinds of characteristics noted above can serve as the focal point for team formation and ensure that the pilot projects are important, appropriate areas for attention. The following is an outline of the sequence of the steps to be achieved in this Element:

STEP 4.1: SELECT TOPICS

The Executive Steering Committee usually identifies and selects the major issues to be addressed by the initial pilot project teams. It also establishes expectations and

timetables for results. At the same time it authorizes the resources necessary for project success. These "resources" would include allocating training time/costs, allocating manager/participant time and coverage for team meetings and data collection, and allocating costs of support materials and data generation as appropriate.



The ESC would also determine the criteria by which it will evaluate the process of using project teams to solve problems. Special attention is given to the areas of demands on management time, coordination activities, and participant selection. In addition the ESC determines the criteria it would use to evaluate the process used by the teams to solve the assigned issues. These criteria would include items such as scope of data collection, use of process steps, and use of QC tools. Chart 4.1 highlights the means by which this step can be met.

STEP 4.2: SELECT TEAMS

The ESC selects team participants (either functional or cross-functional) appropriate to solving each critical issue identified in Step 4.1 The team composition should reflect a variety of knowledge, experience, and viewpoints about this issue. The broader the participant base, the more widespread the ultimate exposure to TQM will be. This also serves to prevent TQM from becoming perceived as the "domain" of one group

CHART 4.1 Select Topics For Teams

STEP / MEANS	TOOLS	RESULTS
Select Topics • ESC Reviews Critical Issues • ESC Selects Critical Issues • ESC Establishes Process Expectations • ESC Establishes Reward/Recognition Strategy	• 7 MP Tools • Critical Process Matrix	• Key Issues Selected • Key Process Criteria Identified For Subsequent Evaluation of Team Recommendations

or staff in an organization. The team should also be given the capability to call on "ad hoc" members to contribute specialized knowledge about the process or problem as necessary. Chart 4.2 outlines the means to achieve this step.

STEP 4.3: TRAIN TEAMS

Team training has several dimensions. First of all, it is most effectively done when provided "Just In Time." "JIT" training ensures that participants use learned skills immediately rather than trying to recall what was learned six months ago. Secondly, the teams should be familiar with the mechanics and application of the Seven Basic QC Tools and the Seven Management and Planning Tools. Third, the teams should be able to use team

CHART 4.2: Selecting the Teams

STEP / MEANS	TOOLS	RESULTS
Select Teams • ESC Reviews Problems/Issues • Executive Staff Identifies Potential Team Participants • ESC Selects Teams • ESC Provides Resources	• Matrix On Issues/Skills	• Participant Selection Matches Issue Resolution Requirements

processes (e.g., problem-solving steps, breakthrough steps, decision steps) and understand team dynamics (listening, participation techniques, etc.). Finally, the team training should involve a TQM overview and a "TQM in our organization" briefing by a senior management team sponsor. Chart 4.3 is a summary of this.

STEP 4.4: TEAMS TACKLE ISSUES/PROBLEMS

At this point in the implementation of the Initial Plan, the pilot teams apply the techniques of Plan-Do-Check-Act and Problem-Solving Analysis to attack the tasks that they have been assigned. The teams also define their administrative ground rules (schedule, time constraints, etc.) at this time. After applying the process techniques/tools to the issue/problem, the teams make a presentation to management of their results and their appraisal of the process they used to resolve the issue they were assigned. Emphasis on this "first generation" teaming is split between "getting results" and learn-

CHART 4.3: Train Teams

STEP / MEANS	TOOLS	RESULTS
Train Teams • Conduct Just-In-Time Training • 7 Basic QC Tools Training • 7 MP Tools Training • Team Process/Dynamics Training • TQM Overviews	• External Training Courses • Internal Training Courses • Reading in TQM • Coaching/Facilitation • Support by Executive Sponsor	• Teams Have Data Analysis/Team Skills To Resolve Issues

ing the "tools and processes" of TQM. Chart 4.4 summarizes the means to achieve this step.

STEP 4.5: RESULTS EVALUATED/PROCESS EVALUATED BY ESC

The Executive Steering Committee (ESC) reviews the results and the process learnings generated by the first pilot project teams. This evaluation constitutes the basis on which the ESC begins to formulate and strategize the nature and scope of the follow-up TQM roll-out. Team results are analyzed in terms of problem resolution and the quality of the recommended solution. Team process learnings are assessed in terms of the process evaluation set in Step 4.1 (Establishing Process Expectations). In addi-

CHART 4.4: Teams Tackle Issues/Problems

STEP / MEANS	TOOLS	RESULTS
Each Team Tackles Issues		
• Team Sets Ground Rules	• 7 QC Tools	• Project Solutions
• Team Defines Focus	• 7 MP Tools	• Process Tool Learning
• Team Collects Data	• Data Collection	
• Team Uses Process Techniques To Solve Problems	• Facilitators	• Skills Acquisition by Team Members
• Team Makes Presentation To Management		

tion, the ESC reviews the overall project team process itself specifically to enhance or improve the system that the organization would use in the future to manage the "team" dimension of the TQM process. In this manner, the TQM project team system begins its "continuous improvement." In addition, the ESC identifies appropriate "recognition/ reward" acknowledgement of team activities at this time.

STEP 4.6: DEVELOP CRITICAL MASS OF TRAINED EMPLOYEES/MANAGERS

As project teams continue to be assigned tasks, there is a broadening of competency and familiarity with TQM processes and tools across the organization. This supports the effort to make TQM a working, familiar set of skills and disciplines for the entire organization. As this TQM competency increases, more complex and sophisticated problem areas can be defined as viable focus areas for project team assignment. Project team successes can also be publicized and recognized to further facilitate the acceptance

CHART 4.5: Results/Process Evaluated

STEP / MEANS	TOOLS	RESULTS
Results/Process Evaluated • Team Results Evaluated • Team Process Learnings Evaluated • Overall Project Team Process Evaluated • "Lessons Learned" Incorporated Into Future Team Process • TQM Efforts Are Recognized and Rewarded	• Criteria Set In Step 2.1 • 7 QC Tools • 7 MP Tools	• Issue Resolution • Enhanced Project Team System • TQM Efforts Rewarded/ Recognized

of TQM across the organization.

BARRIERS/CAVEATS FOR ELEMENT #4

- Teams require the active involvement of the organization's leadership.
- Training must be tailored to organization's TQM criteria, not the vendor's.
- Reward and recognition systems must be consistent and understood throughout the organization and not "shotgunned."
- Focus of pilot teams should be on using the tools and processes of TQM.

CHART 4.6: Develop Critical Mass

STEP / MEANS	TOOLS	RESULTS
Develop Critical Mass • Ongoing Project Team Assignments • Publicize Team Successes	• Team Projects • Meetings • Newsletters • Publications	• Skills Become Known Across the Organization • Participation from All Sectors of the Organization is Encouraged • TQM Gains Organizational Support

- Be sure that pilot efforts include the visible action of senior manager sponsorship to build capability as well as commitment.
- Project selection should focus on priority business issues.

ELEMENT #5: ASSESSMENT AND FIVE-YEAR PLAN

Purpose

In this phase of the implementation process, the Executive Steering Committee (ESC), in conjunction with the entire executive staff, takes the information and "lessons learned" from the pilot project teams (Element 4), the QFD review (Element 2), and Critical Process Review (Element 3) and uses them as a basis upon which a multi-year TQM Master Plan for the organization can be developed. It is at this point that the organization makes the commitment to do TQM. In addition, through the use of Breakthrough

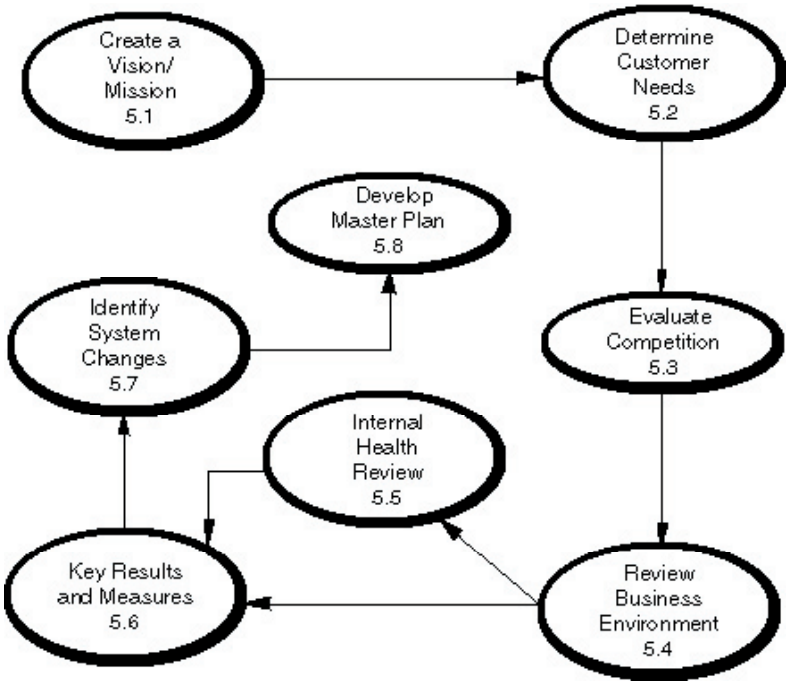
Planning techniques, the organization focuses on the critical breakthrough areas needed for significant product/service improvements. The purpose of Breakthrough Planning is to clarify the vision of the organization, and align and communicate this vision and the methods by which the vision will be achieved to all employees. Breakthrough Planning also provides the structure for monitoring and assessing progress toward the organization's vision. Not only does the Breakthrough Plan identify the end result desired but it also ensures the full development of the methods and path by which the necessary breakthrough targets are to be achieved.

The Breakthrough Plan does not replace the organization's strategic plan but supplements it. Employees at all levels in the organization understand their role in achieving the organization's vision. The Breakthrough Plan also serves as the focus around which the organization's TQM implementation strategy can be aligned to support the organization's key breakthrough efforts.

The sequence of steps is as follows:

STEP 5.1: CREATING A VISION/MISSION FOR THE ORGANIZATION

Through the use of the Seven Management and Planning Tools, especially the KJ or Affinity Chart and the Interrelationship Digraph, the executive and senior management groups begin to establish together the dimensions of the vision for the organization. Use of these tools involves both creative and logical skills of management and does so in a forum in which the traditional patterns of interaction are changed. This change often opens up discussions and ideas which may have been lost or suppressed in the traditional peer-to-peer or peer-to-superior exchanges. The vision of the future organization begins to be formulated as the senior management group determines the



attributes of a "best-in-class" organization and then groups these dimensions into sets of related information. Discussions around the reasons for and the relationships among the identified dimensions enables senior management to set the basis for a common vision that is supported by alignment and a sense of common purpose.

Once a preliminary vision is established, a mission statement can be developed by examining the purpose and charter of the organization and defining what the organization does. In this sense, the mission statement is a list of action statements that represent what is done and why. It becomes a set of guidelines for carrying out the vision.

STEP 5.2: DETERMINING CUSTOMER NEEDS

The purpose of this Step (and Steps 5.3 and 5.5) is to ensure that the preliminary vision established in Step 5.1 is interpreted with a "real world" focus. The 5.1 vision is a "pie-in-the-sky" vision and needs to be contrasted with "real-world" requirements for any implementation plan that is developed. Therefore, at this stage the information previously generated in Element 2 is collected and analyzed by the executive and senior management of the organization. The QFD process, supplemented by other external and internal data, represents the customer's view of valuable services and products. These data sources are pulled together to represent as accurate and complete a set of

CHART 5.1: Creating a Vision/Mission

STEP / MEANS	TOOLS	RESULTS
Creating a Vision / Mission		
• Detailed Discussions On Dimensions of "World-Class Organization"	• Affinity Chart	• Vision Statement
• Basic Education On Hoshin Planning Process	• Interrelationship Chart	• Mission Statement
• Vision Statement Formulated	• Other 7 MP Tools	
• Discussions On Organization Functions	• Prize Criteria	
• Mission Statement Formulated		

customer views as possible. Collection and analysis of this data assist the executive and senior management in understanding both where the organization is and should be in the eyes of the customer. Such a process also highlights where customer data is incomplete or nonexistent.

This process of synthesizing data collected from many sources and reviewed under the scrutiny of QFD or compared to other data often results in a more intense and complete effort to gather more information. In this process the organization is forced to upgrade its knowledge base and its assumptions about what customers desire from the organization.

STEP 5.3: EVALUATE COMPETITORS/BEST IN CLASS ORGANIZATIONS

By undertaking the discipline of documenting the competitive strength of the organization and that of other organizations with which it competes, the organization can identify improvement opportunities. A clearer representation of the nature of the competition which the organization faces relative to customer needs and expectations is also evolved at this stage of analysis. New areas for product and service excellence can be envisioned which respond both to customer desires and provide an advantage in the marketplaces within which the organization competes. All of this analysis can be facilitated through Benchmarking and S.W.O.T. (Strengths/Weaknesses - Opportunities/

CHART 5.2: Determining Customer Needs

STEP / MEANS	TOOLS	RESULTS
Determining Customer Needs		
• Summarize Available QFD Data	• QFD Information from Step 3	• Documentation of Customer Needs
• Review Other Customer Data	• Customer Surveys	
	• Focus Groups	
• Identify Areas for Further Data Acquisition On Customer Demands	• Internal Customer Service Data	
• Prioritize Customer Demands and Expectations		

Threats) review of the organization and its competitors and/or "best-in-class" organizations.

STEP 5.4: REVIEW BUSINESS ENVIRONMENT CHARACTERISTICS

No organization exists in a vacuum. Demographics, value shifts, world markets, environmental regulations, legal restraints, and social responsibilities are some of the business environment characteristics that cannot be ignored. This target activity as part of the overall organizational assessment allows the organization to undertake actions that prevent major problems from occurring by taking corrective actions upstream in time and process. It also facilitates actions that can compensate for factors outside the control of the organization. In this sense the organization can become proactive in ensuring that as a customer itself, its concerns are known and responded to by oth-

CHART 5.3: Evaluate Competitors

STEP / MEANS	TOOLS	RESULTS
Evaluate Competitors • Review Benchmark Data • Review QFD Data • Document S.W.O.T. of Competitors • Identify Areas for Product/Service Excellence	• QFD Data/Process • Benchmarking • Market Research • Product/Service Evaluation • S.W.O.T. Analysis	• Documentation of Organization's Position Relative to Competition

ers. Where possible this ensures that preventive measures are taken at the broadest and highest possible levels for the good of the organization and the clients it serves. In those situations in which preventive measures cannot be taken, actions can be planned to manage the effect of the external factors that might negatively affect the achievement of the organization's vision.

STEP 5.5 INTERNAL HEALTH REVIEW

As part of the overall organizational assessment, it is also important to assess the readiness of the organization itself to embark upon a change process. In this regard, a survey of employees and management is appropriate in order to review current levels of employee morale and confidence in the management of the organization. If, for example, there is widespread division within the workforce typified by a lack of target focus, high absenteeism, low morale, and a high level of distrust and a lack of confidence in the management of the organization, any effort to introduce TQM will be met with stiff resistance. The organization needs to conduct an Internal Health Audit through which

CHART 5.4: Review Business Environment

STEP / MEANS	TOOLS	RESULTS
Review Business Environment • Perform S.W.O.T. Analysis On Business Environment • Review Legal/Ethics Issues • Review Current/Proposed Environmental Regulations and Compliance Requirements • Examine Critical Business Processes for Jeopardies	• Information from National Associations • Presentation by Internal Specialists • 7 MP Tools	• Impact Statements • Identification of Preventive Actions • Identification of Contingent Actions

it can identify employee and management concerns and complaints about the organization. With this information, the internal barriers to the success of a TQM process can be identified and both preventive and contingent actions can be taken in order to facilitate its acceptance and utilization by the entire workforce.

Chart 5.5 summarizes this step:

STEP 5.6: ESTABLISH KEY RESULT AREAS AND MEASURES

In the achievement of a vision, it is helpful to establish key result areas and measures to monitor progress toward that vision. In addition to the key results and measures that can be generated from the work done previously in 5.1-5.5, criteria can be developed through an analysis of the criteria for recognized TQM awards such as the Baldrige National Quality Award or the Deming Prize. Profiling the current state of the organization versus the criteria can serve to identify benchmarks/measurements that the organization can use to audit its progress toward TQM.

STEP 5.7: IDENTIFY AREAS FOR SYSTEM CHANGES

CHART 5.5: Internal Health Survey

STEP / MEANS	TOOLS	RESULTS
Internal Health Survey		
• Develop Survey Questions/Criteria	• Survey Data Available Already	• Identification of Potential Barriers to TQM Acceptance/ Utilization by the Workforce
• Determine Distribution	• Focus Groups	
• Conduct Survey	• Questionnaires	
• Evaluate Results	• Consultant Surveys	

Leading up to this point in the analysis, the organizational assessment encompassed a vision leading to a mission statement, analysis of customer needs, competitive analysis, an internal health review, external factor review, and a definition of key results and measurements. Building upon this sequence, areas for system/process changes are identified and prioritized. The purpose of this is to ensure that the organization can take actions that compensate for the barriers and interference that it will encounter in meeting its vision. It is upon this basis that a final vision which reflects the "real world" is developed and adopted.

CHART 5.6: Establish Key Results and Measures

STEP / MEANS	TOOLS	RESULTS
Establish Key Results/Measures		
• Review Prize Criteria • Profile Organization Against Criteria • Identify Benchmarks/ Audit Points and Measurements	• Prize Criteria • Radar/Spider Chart • Vertical Profile Chart • 7 MP Tools	• Key Results Established • Key Measures Established • Audit System Basis • Visible Systems Analysis

STEP 5.8: DEVELOP MULTI-YEAR MASTER PLAN

Based on 5.1-5.7, the executive staff is in a position to formulate a Master Plan from all the data and information thus generated. This Plan is initially outlined and it, along with appropriate information developed in 5.1-5.8, is communicated down through the organization with requests for contributions and feedback. Special attention is given to the responses from each level of management as well as the general employee population. This feedback from the organization is consolidated and then the full multi-year plan is developed in detail for the organization to implement. Such a Plan unites a TQM roll-out with the focus on the direct improvement of the organiza-

CHART 5.7: Identify Areas of System Change

STEP / MEANS	TOOLS	RESULTS
Identify Areas of System Change • Review Data from 5.1-5.6 • Prioritize Critical Systems • Contrast Critical Systems vs. Interference Issues • Identify Systems in Need of Major Change • Finalize Vision Statement	• Internal Performance Data • Data from 5.1-5.6 • 7 MP Tools • Matrix Charts	• Major Improvement Opportunities Identified and Prioritized • Vision Statement Finalized

tion's competitive position.

BARRIERS AND CAVEATS FOR ELEMENT #5

- Be careful not to underestimate the magnitude of the changes required in systems and processes that will need to occur.
- Be sure to have "communications" and "deployment" segments in your Multi-Year Plan.
- Decision to proceed must be made with as much knowledge of the implication as possible.
- TQM plan should be in concert with the strategic plan of the organization.

CHART 5.8: Develop Multi-Year Master Plan

STEP / MEANS	TOOLS	RESULTS
Develop Multi-Year Plan • Analyze 5.1-5.7 • Outline Multi-Year Plan • Communicate Plan/Data Down Through the Organization • Based on Feedback, Develop Final Plan and Begin Implementation	• 7 MP Tools • Management Meetings • Focus Groups • Employee Briefings	• Multi-Year Master Plan

- Be careful not to make the Multi-Year Plan too "blue sky."
- Leadership must personally communicate the plan.

ELEMENT #6: MANAGING TQM MOMENTUM

PURPOSE

The purpose of this Element is to continue to confirm information about customer needs/expectations which have been assessed in Elements 1-5 and to organize and coordinate the organization-wide implementation of the Master Plan developed in Element 5. These activities include an ongoing review of TQM results and project team activity, the ongoing review and response to the social and human impact of change upon the organization, communication of progress to the general workforce, and the appropriate recognition and reward of TQM efforts. There is no specific sequence for the steps to be achieved in this Element because each step is contingent upon other factors

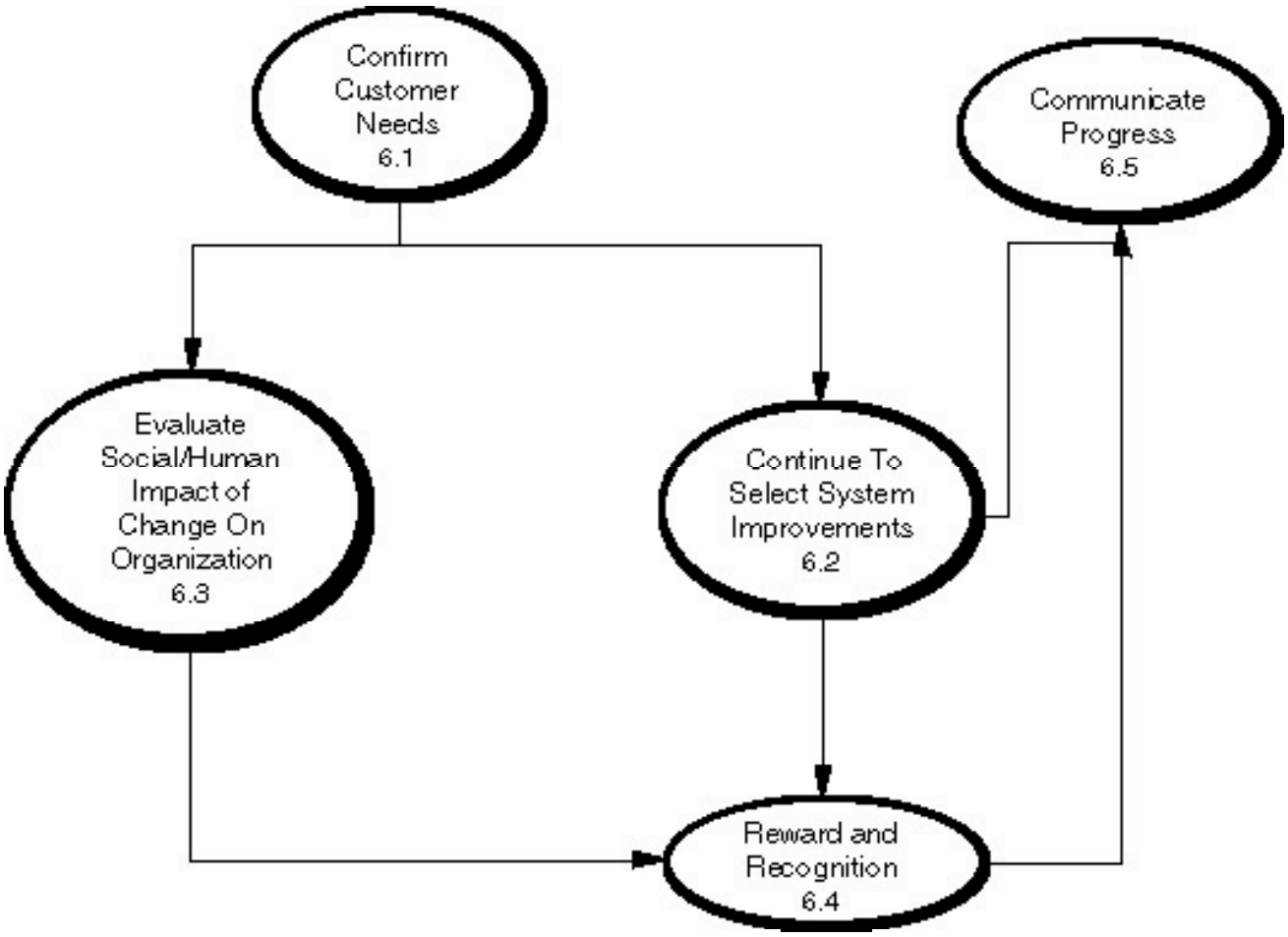
as well as the steps involved within this Element. A flow chart of the steps illustrates this:

STEP 6.1: CONFIRM CUSTOMER NEEDS/EXPECTATIONS

The Executive Steering Committee (ESC) pulls in customer information that has been developed thus far in Elements 1-5 and creates a "database" of documentation about customer needs and expectations. Efforts to improve the accuracy and the completeness of the customer's voice continue to be made in order to ensure the proper focus and direction of organization efforts.

STEP 6.2: CONTINUE TO SELECT SYSTEM IMPROVEMENTS

As project teams complete the tasks assigned and as new problems and issues surface, the ESC now guides the selection and assignment of new tasks for project teams



and functional teams. Within the scope of the breakthrough (Hoshin) objectives, the management of the organization can search out and resolve process issues that are key to the organization's success. Using the clarity of the vision and organizational knowledge gained in the previous Elements, the ESC sets as targets key system challenges within the organization and thus supports the other levels of management in organization-wide TQM efforts. Over the course of time, the project and team assignments increase in complexity and scope with the subsequent greater impact on the achievement

CHART 6.1: Confirm Customer Needs and Expectations

STEP / MEANS	TOOLS	RESULTS
Confirm Customer Needs		
• Consolidate Customer Data	• QFD Data	• Accurate Customer Information
• Create Customer "Database"	• Customer Satisfaction Surveys	• Documentation of Customer Expectations
• Conduct Periodic Review of Data For Accuracy/ Completeness	• Focus Groups	• Verification of QFD Analyses

of the organization's vision and mission. In addition, the other levels of management in the organization, working with the ESC, take on an increasing role in the identification and selection of team projects.

STEP 6.3: EVALUATING AND MANAGING TQM CHANGE

As a TQM process is implemented, it may bring about and/or require changes in management style and employee interaction. Participatory activities may mean that certain managers adjust and adapt their method of management to meet the requirements of a participatory effort. Teamwork may require changes in employee interaction as well. Such changes in style and behavior do not come automatically. Likewise, understanding will not immediately result in behavior change (i.e., participation in a training course does not immediately ensure that a person will act or feel differently in the future). The key criteria for this Step are education with ongoing follow-up, critique, and modeling. Additional criteria are support systems and patience.

CHART 6.2: Continue Selection of System Improvements

STEP / MEANS	TOOLS	RESULTS
Continue System Improvements • Review Issues/Concerns • Review Project Team Results • Assign New Tasks for Teams	• 7 MP Tools • Project Team Results • TQM Results Benchmarking	• Critical Systems Improved • Organization-Wide Implementation of TQM

STEP 6.4: REWARD AND RECOGNITION REVIEW

The ESC, now working with the management of the organization, ensures that all TQM efforts are given the recognition and rewards that reflect the organization's commitment to TQM/quality. The purpose of this focus is to reward desired actions and to ensure that the employee and management TQM efforts are reinforced as the top priority of the organization. Through the use of rewards and recognition, combined with appropriate internal and external publicity, the ESC promotes the wider awareness and acceptance of TQM across the organization. During this process, care must be taken to minimize the effect of traditional reward/recognition systems that might be detrimental to TQM efforts by reinforcing non-TQM type activities at the expense of TQM efforts (e.g., rewarding individual contributions without rewarding team efforts will under-

CHART 6.3: Evaluating / Managing TQM Change

STEP / MEANS	TOOLS	RESULTS
Evaluating/Managing TQM • Continual Review of TQM Acceptance Among the Workforce • General Education On the Personal Change Process • Specific Education and Follow-Up • Modeling of Participatory/Teamwork Behaviors	• Surveys • Feedback Meetings • Focus Groups • Education/Follow-Up Programs	• Managers/Employees Are Able to Cope With Changes In Behavior and Management Style • The Human Impact of TQM Is Managed

mine employee motivation to work on teams).

STEP 6.5: COMMUNICATE IMPROVEMENT CHALLENGES

The communication of priority needs and issues for the organization is now coordinated by the ESC and the executive staff. All communication media are utilized in the effort to share the vision of the organization on an ongoing basis and to communicate periodically on key TQM issues, the results of TQM efforts, and organizational gains in the marketplace. This communication is directed at all employees. In some instances organizations have also developed a specific report to management on TQM progress. In this way the ESC can guide the introduction and continuing development of TQM into the organization.

BARRIERS AND CAVEATS FOR ELEMENT #6

CHART 6.4 Reward and Recognition Review

STEP / MEANS	TOOLS	RESULTS
Reward/Recognition Review • ESC Rewards TQM Efforts • ESC Rewards Project Team Activity • ESC Audits Performance Review System to Ensure TQM Activities Are Rewarded In Addition to Individual Performance	• Formal Recognition System • Dollars/Visibility • Success Stories • Team Success Stories • Cost of Quality Results	• TQM Reinforced • Mgt./Employee Motivation • Increased Level of Commitment

- Senior management cannot "delegate" the managing of TQM at this point. It should continue its involvement and visibility.
- Management has to work hard to get an infrastructure in place that supports TQM and sustains it.
- Significant changes in the rewards/recognition structure may be required.
- Be sure to provide for both education and practice time.
- Audit of TQM is not easy to implement. It should not be neglected, however.

CHART 6.5 Communication of Improvement Challenges

STEP / MEANS	TOOLS	RESULTS
Communication of Challenges • ESC Monitors TQM Results • ESC Publicizes TQM Efforts • ESC Promotes Vision	• Direct Communication by Top Management • Speeches • Newsletters • Management Reports • Publicity Media	• Vision Continues To Be Communicated • Communication of Key Issues Throughout Organization

- Be careful not to lose sight of the organization's strategic plan and its connection with TQM efforts.

- Seek opportunities for improvement, not objects for blame.

- The review/audit process cannot be delegated.

- It is easy to underestimate the amount of training/education required at this time.

ELEMENT #7: INDIVIDUAL MANAGER'S CONTRIBUTION THROUGH HOSHIN PLANNING

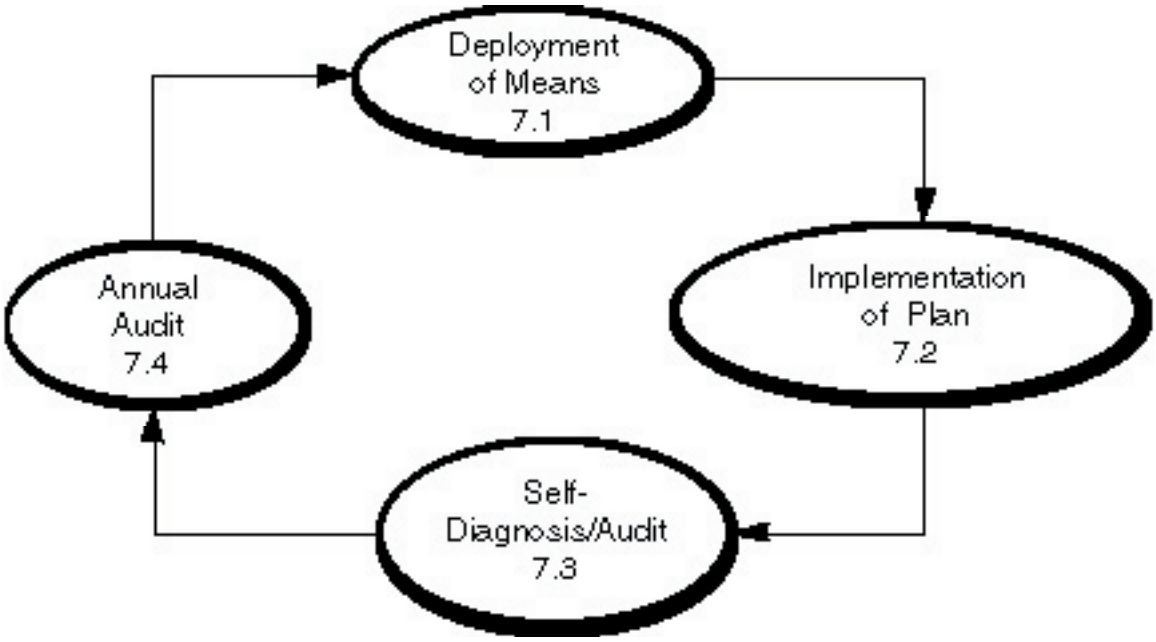
PURPOSE

The alignment that characterizes TQM organizations can be seen in the cascading of the previous organizational assessment, vision, QFD, and team project results into each individual manager's Breakthrough Plan. The primary purpose of this Element is to ensure that the means by which the manager will support the broader breakthrough objectives and the organization's vision are made visible in great detail and then monitored on a monthly, quarterly, and annual basis.

The sequence of this element is as follows:

STEP 7.1: DEPLOYMENT OF INDIVIDUAL PLANS

In Element 5, the vision and breakthrough objectives for the organization were established. Now each manager reviews those objectives and then develops (both individually and in discussion with his or her manager) the means by which managers will contribute to the achievement of those goals. No goals can be set without corresponding Steps and means to support those Steps and measures to assess the acquisition of the Steps. This requires that the "cascading down" of Steps is not simply one-way vertically, but rather results in a dialogue up and down the management structure. In addition to the development of means, the manager also determines the measures by which the results achieved and the process used to achieve the results will be monitored. All of this information is made visible and charted. Such inputs from managers can then be collected and made visible in an organization-wide chart that depicts the contributions to be made from every group and department.



STEP 7.2: IMPLEMENTATION

Each manager reviews the critical processes and potential problem issues that require contingency planning to ensure successful achievement of the breakthrough objectives. The manager completes a Process Decision Program Chart and an Activity Network Diagram on those elements to prevent problems from occurring in the first place or, in cases where factors are beyond control of the manager, to take contingency actions that minimize the effect of the problem/barrier. The manager then initiates action according to his or her plan.

STEP 7.3: SELF-DIAGNOSIS/AUDIT

The success of the plan and the techniques used in this effort are enhanced by

constant attention to and audit of the results achieved and process used by each manager. As means are used through the PDCA (Plan-Do-Check-Act) Cycle, a cycle of feedback to the individual managers fosters timely correction and support for plan success.

CHART 7.1 Deployment of Means

STEP / MEANS	TOOLS	RESULTS
Deployment of Means • Establish Means to Reach Objectives for Self, Boss, and Subordinate • Test Plan Against Objectives, Past Results • Finalize Plan: Targets, Means, and Measures • All Managers' Plans Combined and Made Visible/Documented	• Target/Means Matrix • 7 MP Tools • Flag Chart	• Alignment of Efforts • Increase Ownership of Means Accomplishment • Measurement Criteria Set

Progress is usually checked by the individual manager at least on a monthly basis and is reviewed with superiors on a quarterly basis. Chart 7.3 summarizes this activity:

STEP 7.4: ANNUAL PROGRESS REVIEW

On an annual basis there is an Executive Audit that looks at the trends of progress and results achieved. Attention is given to understand why projects were either successful or not successful from a process perspective. Special focus is given to ensuring that all gains achieved have been captured in some form of standardization. The executive staff also examines the breakthrough process itself and makes any adaptations

CHART 7.2 Implementation

STEP / MEANS	TOOLS	RESULTS
Implementation • Manager Reviews Critical Processes/ Barriers • Manager Establishes Plan for Preventive Actions • Manager Plans for Contingencies • Manager Executes Plan Step By Step	• PDPC Chart • Activity Network Diagram • 7 MP Tools • PERT Chart	• Upstream Problem Solving • Contingency Planning • Clear Plan

necessary to improve its effectiveness in subsequent years.

BARRIERS AND CAVEATS FOR ELEMENT #7

- Implementation will be "imperfect" during the first two years of this activity because it requires some new management skills.

- Be sure to limit the scope of breakthrough objectives; trying to catch too many

CHART 7.3 Self-Diagnosis/Audit

STEP / MEANS	TOOLS	RESULTS
Self-Diagnosis/Audit • Manager Reviews Results/Process • Problems and Process Improvement Opportunities Analyzed • Corrective Actions Identified and Taken • Quarterly Reviews With Superior	• Criteria Set In 7.1 • 7 MP Tools • 7 QC Tools	• Scheduled Feedback On Progress/ Problems • Corrective Actions Taken

rabbits may be hazardous to your health.

- Be sure to review the process as well as the results of the breakthrough efforts.

ELEMENT #8: DAILY PROCESS MANAGEMENT AND STANDARDIZATION

PURPOSE

CHART 7.4 Annual Progress Review

STEP / MEANS	TOOLS	RESULTS
Annual Progress Review • Complete Audit of Process and Results • Review of Standardization • Complete Audit of Hoshin Process Itself	• 7 MP Tools • 7 QC Tools	• Diagnosis of Missed Targets and Processes In Need of Improvements • Understanding of Correlation Between Plans and Targets • Support of Standardization • Hoshin Improved In Next Year

The purpose of Daily Process Management and Standardization is to ensure that each employee in the organization understands the work processes with which he or she works and knows the needs and demands of the customers of those processes. With this knowledge, everyone can undertake continuous improvement of those processes and systems and check improvements in those processes after changes have been made. As data on the processes uphold the validity of the changes and improvements made, standardization can take place to capture those gains. The focus of this Element is also to ensure consistent levels of quality and understanding of those factors which influence delivery of consistently high quality. Daily Process Management is the system which enables everyone to know what they personally have to do to enable the organization to continuously improve its systems and processes and what they will want to measure

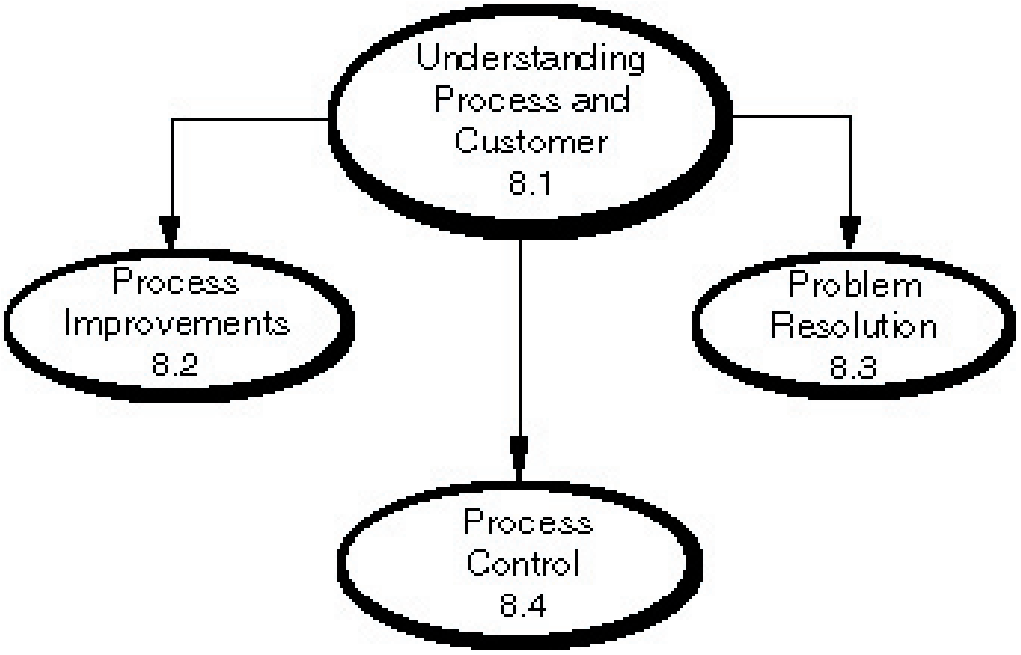
and control to be sure that improvement takes place. This effort is supported by JIT employee training in the Seven QC and MP Tools.

The sequence of steps for this Element is as follows:

STEP 8.1: UNDERSTANDING THE PROCESS AND CUSTOMER

The first task that an individual undertakes in Daily Process Management is to define the processes and systems with which he or she works. Since there are many processes, it is customary for an initial "critical process" identification to be made in order to prioritize focus on significant processes. A Matrix Diagram is most helpful at this stage. Once a process has been selected for review/improvement, the employee analyzes the process. This is done through the use of the Seven QC Tools, especially the flow chart technique. Flow charting in detail helps to make the process "visible" and not only helps to identify the discrete Elements in the process, but also focuses attention on the supplier effects and customer demands. A flow chart highlights the sequence of events, decisions which guide sub-processes, and key events which impact the entire process. Other tools such as a Customer/Supplier Map (Matrix) can also be valuable in this effort.

STEP 8.2: INITIATING PROCESS CONTROL



In order to ensure consistent process output of product or service, process control is initiated by the organization. This involves the measurement and data analysis of processes and systems on an ongoing basis so that any deviations can be identified and addressed in a timely manner.

STEP 8.3: IDENTIFYING OPPORTUNITIES FOR IMPROVEMENT

Armed with the knowledge of the process as it currently works, the employee utilizes the Seven QC Tools to develop knowledge of the relationships among the elements of the process under scrutiny. The use of alternate display tools such as the Cause and Effect Diagram can be particularly useful in visual decision support. Using the charts developed in 8.1, the processes are analyzed for areas of improvement. Process Elements are reviewed for upgrade, combination possibilities, and elimination. Then the new process is flow charted and reviewed with customers and suppliers before imple-

CHART 8.1 Understanding Processes and Customers

STEP / MEANS	TOOLS	RESULTS
Understanding the Process and the Customer • Identification of Critical Processes • Processes Made Visible Through Charting • Supplier Impacts Analyzed • Customer Demands Analyzed	• Flow Chart • Customer/Supplier Map • 7 MP Tools • 7 QC Tools	• Clear Understanding of Each Process Element and How Each Contributes to Customer Satisfaction • Identification of Critical Processes

mentation.

STEP 8.4: PROBLEM RESOLUTION

The capability of an organization to solve problems at the process level is essential to the success of the TQM effort. In many organizations (pre-TQM) problem solving consists of randomly generating possible causes and attempting to select the right cause

CHART 8.2 Initiating Process Control

STEP / MEANS	TOOLS	RESULTS
Initiating Process Control • Select and Prioritize Critical Processes • Train Employees/ Management JIT on Statistical Process Control • Establish Control System • Audit Results	• Control Charts • Run Charts • Other 7 QC Tools • Other Statistical Methods	• Consistency of Output • Consistency of Delivery

based on "gut feeling" or "intuition" rather than data. The clarity of the problem statements and the validity and completeness of the data gathered are vital to the problem-solving process. Likewise the development of measurement criteria to assess the validity of the proposed resolution actions is also important. Chart 8.4 outlines the sequence of the problem-solving steps.

BARRIERS AND CAVEATS FOR ELEMENT #8

- Holding the gain of continuous improvement efforts will be as difficult as the improvements themselves (if not harder).

CHART 8.3 Identifying Opportunities for Improvement

STEP / MEANS	TOOLS	RESULTS
Identify Opportunities for Improvement		
• Chart Process	• 7 QC Tools	• Process Improvement
• Analyze Steps	• 7 MP Tools	• Standardization
• Look for Combinations/ Eliminations		
• Chart New Process		
• Review With Customers/Suppliers		
• Set Criteria for Monitoring Results		
• Standardize When Results Verify Success		

- Management should be linked to all improvement efforts in order to facilitate horizontal coordination of this activity.

- A substantial amount of education is necessary for this Element. Education will be required from basics such as math and literacy to more specialized courses such as Statistical Process Control and Design of Experiments.

ELEMENT #9: NEW FUNCTIONAL AND CROSS-FUNCTIONAL TEAMS

PURPOSE

CHART 8.4 Problem Resolution

STEP / MEANS	TOOLS	RESULTS
Problem Resolution		
• Define Problem	• 7 QC Tools	• Problems Solved
• Define Problem Scope	• 7 MP Tools	• Gains Maintained
• Gather Data		
• Develop Possible Causes		
• Validate Most Likely Cause		
• Implement Solution		
• Monitor for Success		
• Standardize Any Process Changes		

The purpose of this Element is to continue the improvement efforts begun in Element 4 and to provide advanced skill development within the organization. Previously, the ESC targeted key projects and improvements and evaluated the ongoing project team work. In this Element both functional and cross-functional teams are utilized to tackle problems or issues that range from small processes to organization-wide systems. The major difference is that now lower levels of management and existing teams can identify problem areas on which the teams can work. This selection of topics is aligned and linked with the vision and breakthrough objectives set in Element 5. The projects undertaken may also vary in complexity.

The steps in this Element form an ongoing cycle:

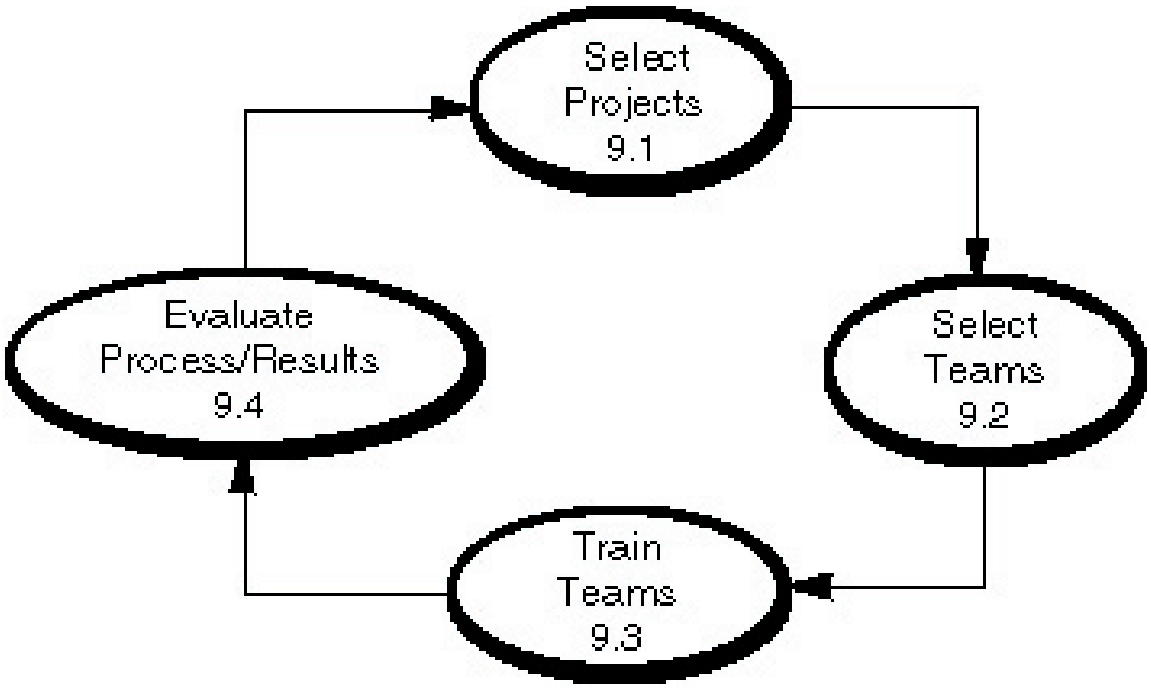
STEP 9.1: TEAMS SELECT PROJECTS

The cross-functional or functional work team begins by selecting a specific issue or problem that is aligned with the priority breakthrough items, defined customer needs, and required system improvements or managerial concerns highlighted by previous TQM efforts. The well-TQM educated/experienced team members are given the responsibility to utilize their knowledge in this problem selection and in the development of evaluation criteria of their work.

STEP 9.2: TEAM PARTICIPANTS SELECTED

This is an optional step. In many cases the skill, knowledge, and experience mix of the existing team may not be sufficient to address the selected issue or problem effectively. In those situations, either new members are brought onto the team or ad hoc members are invited to participate in the problem-solving effort.

STEP 9.3: TEAMS TRAINED



Because the problems/issues now being addressed require more comprehensive use of diagnostic tools and techniques as well as broader cross-functional knowledge, the team may need additional training in order to bring the project to completion. This training may involve the acquisition of advanced statistical tools and technical knowledge.

STEP 9.4: RESULTS/PROCESS EVALUATED

CHART 9.1 Teams Select Projects

STEP / MEANS	TOOLS	RESULTS
Teams Select Projects • Teams Review Vision and Breakthrough Objectives • Teams Select Project Appropriate to Their Skill Mix and Composition • Teams Communicate Selection to Ensure Cross-Functional Coordination • Results/Process Criteria Set by Teams	• Vision • Breakthrough Objectives • 7 MP Tools • 7 QC Tools	• Projects Identified • Process Planned • Results/Process Criteria Set

After being trained, the team applies its skills to resolve the issue or problem previously selected. When it has completed this task, it evaluates its results and the process it used to generate those results against the criteria it established in 9.1. The purpose of this is to provide for the ongoing improvement of the team.

BARRIERS AND CAVEATS FOR ELEMENT #9

CHART 9.2 Team Participants Selected

STEP / MEANS	TOOLS	RESULTS
Team Participants Selected • Problem Resolution Skill Requirements Analyzed • New Members Selected	• 7 MP Tools	• Team Composition Appropriate for Issue to be Addressed

- Facilitator training is a must.
- Continuing to reward team activity is a must.
- Be sure that the organization does not become overloaded with too many teams.

CHART 9.3 Teams Trained

STEP / MEANS	TOOLS	RESULTS
Teams Trained • Problem Requirements Review • Training Needs Identified • Training Conducted • Training Evaluated	• Advanced Statistical Tools • Technical Training • 7 MP Tools • 7 QC Tools	• Functioning Teams with Appropriate Background to Solve Problem

- Be sure to provide the management of the organization with visibility on team activity and recommendations.

ELEMENT #10: EVALUATE PROGRESS/REVISION OF MULTI-YEAR PLAN

PURPOSE

The purpose of this Element is to improve the planning process and to develop

CHART 9.4 Results/Process Evaluated

STEP / MEANS	TOOLS	RESULTS
Results/Process Evaluated • Results Evaluated • Process Evaluated • "Lessons Learned" Documented for Future Implementation	• Criteria Set In 6.1 • 7 MP Tools • 7 QC Tools	• Continuous Improvement of Team Functioning • Documentation of "Lessons Learned"

priorities for the coming year. Feedback from all previous areas of the implementation model will ensure that progress is focused, reviewed, and the process improved for the following year. This review parallels the breakthrough review conducted in Element 7 but is more broadly focused on the implementation of TQM overall. The evaluation is done at least quarterly by management to verify that execution is consistent with the plan and that the plan is adjusted to realign it with changes that might occur during the year. In this manner the five-year plan can be upgraded and modified on an annual basis and the organization can move forward in its continuous improvement efforts toward the achievement of its vision and mission.

CHART 10.1 Review Progress

STEP / MEANS	TOOLS	RESULTS
Review Progress • Quarterly Reviews • Generation of "Lessons Learned" • Development of Strategies for Next Year's Plan	• Criteria Set In Previous Steps • 7 MP Tools	• Plan Audit • Plan Adaptation • Improvement Strategies for Next Year