CHAPTER 9

The Juran Transformation Model and Roadmap

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About This Chapter

Creating the state of performance excellence in organizations will enable our global society to avoid technological failures from harming the environment and, ultimately, its people. Transforming an organization from one culture to another is not an easy task. However, it can happen when an organization creates systematically significant, sustainable, and beneficial change. We provided the universal principles in Chapters 1 through 8. This chapter outlines the means to pull the universal into one roadmap to create a culture of performance excellence. The systematic approach that we call the Juran Transformation Model can enable any organization to transform itself by knowing what to expect. Transformation usually requires six organizational breakthroughs before a state of performance excellence can be attained.

High Points of This Chapter

1. A breakthrough is defined as the purposeful creation of significant, sustainable beneficial change. It is often associated with process improvement targets. Transformation requires that the organization attain breakthroughs. The required breakthroughs are leadership and management, organization structure, current performance, culture, and adaptability and sustainability.

2. Organizational change is important for three reasons (each of which can destroy an organization): (1) Costs of poorly performing processes are too high, (2) dealing with continual societal changes, and (3) without change, organizations die.
3. All organizations must be thought of as open systems. Open systems depend on successful transactions with the organization's external environment and proper coordination of the organization's various specialized internal functions.
4. In attempting to create these breakthroughs, problems that appear in one work area often have their origin upstream in the process. Therefore, people in a given work location suffering from a performance problem cannot necessarily solve it by themselves.
5. Performance excellence can only be attained with the active participation, not only of individuals who created the problems, but also individuals affected by the problem and those who create remedial changes to the problem (usually those who are the source of the problem and perhaps others).
6. Organizational change attempted in isolation from the whole organization and without systems thinking can easily create more problems than existed previously.
7. The approach can provide the model and roadmap for transformational change.

Transforming a Culture

Changing a culture is difficult and usually unsuccessful unless a comprehensive approach exists to achieve and sustain it. The Juran Transformation Model and Roadmap describes five separate and unique types of breakthroughs that must occur in an organization before sustainability is attained. Without these breakthroughs, an organization attains superior results, but the results may not be sustainable for long periods of time. If performance excellence is the state in which an organization attains superior results through the application of the universal quality management methods, then an organization must ensure that these methods are used successfully. The journey from where your organization is to where it wants to go may require a transformational change. This change will result in the ability of the organization to sustain its performance, attain world class status, and market leadership.

The five breakthroughs are listed as follows:

1. Leadership and management
2. Organization and structure
3. Current performance
4. Culture
5. Adaptability and sustainability

The Juran Transformation Model

The Juran Transformation Model (Figure 9.1) is based on over 60 years of experience and research from Dr. Juran and the Juran Institute. The five breakthroughs, when complete, help produce a state of performance excellence. Each breakthrough addresses a specific

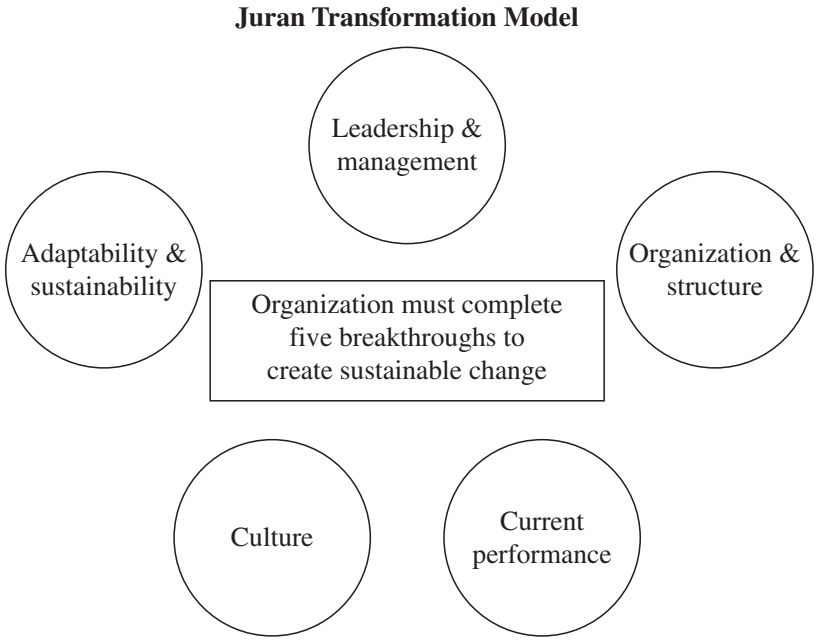

Figure 9.1 Juran Transformation Model. (*Juran Institute, Inc. 2009.*)

organizational subsystem that must change. Each is essential for supporting organizational life; none by itself is sufficient. In effect, the breakthroughs all empower the operational subsystem whose mission is to achieve technological proficiency in producing the goods, services and information for which customers will pay for or use. There is some overlap and duplication of activities and tasks among the different breakthrough types. This is to be expected because each subsystem is interrelated with all the others, and each is affected by activities in the others. The authors acknowledge that some issues in each type of breakthrough may have already been addressed by the reader's organization—so much the better. If this is the case, if you did not start your organization's performance excellence journey from the beginning, pick up the journey from where your organization presently finds itself. Closing the gaps will likely be part of your organization's next strategic business planning cycle. To close the gaps, design strategic and operational goals and projects to reach those goals and deploy them to all functions and levels.

Breakthrough and Transformational Change

Breakthroughs can occur in an organization at any time, usually as the result of a specific initiative, such as a specific improvement project (e.g., a Six Sigma, improvement project; a design of a new service, or the invention of a new technology). These changes can produce sudden explosive bursts of beneficial change for your organization and society. But they may not be enough to cause the culture to change or sustain itself to the changes that occurred. This is because it may not have happened for the right reason. It was not purposeful. It came about through chance. Change by "chance" is not predictable or sustainable. What an organization needs is predictable change.

Today's organizations operate in a state of perpetual, unpredictable change that requires the people in them to produce continuous adaptive improvements as pressure mounts for

new improvements to be made from the outside. These improvements may take months or even years to accomplish because it is the cumulative effect of many coordinated and interrelated organizational plans, policies, and breakthrough projects. Taken together, these diligent efforts gradually transform the organization.

Organizations that do not intend to change usually will when a crisis—or a fear of impending crisis—triggers a need for change within an organization. Consider the following scenario:

> Two of the largest competitors have introduced new products that are better than ours. Consequently, sales of products X and Y are heading steadily down, and taking our market share along. Our new product introduction time is much slower than the competition, making the situation even worse. The new plant can't seem to do anything right. Some equipment is often down, and, even when in operation, produces too many costly defective items.
>
> Too many of our invoices are returned because of errors, with the resulting postponement of revenue and a growing number of unsatisfied customers, not to mention the hassle and costs of rework. Accounts receivable have been much too high and are gradually increasing. We are becoming afraid that the future may offer additional threats we need to ward off or, more importantly, plan for so they can be prevented altogether. Leadership must take action, or the organization is going to experience a loss of market share, customer base, and revenue.

Breakthroughs Are Essential to Organizational Vitality

There are four important reasons why an organization cannot survive very long without the medicinal renewing effects of continual breakthrough:

1. *The costs of* poor quality (COPQ) continue to increase if they are not tackled. They are too high. One reason is that organizations are plagued by a continuous onslaught of crises precipitated by mysterious sources of chronic high costs of poorly performing processes. As we stated in Chapters 1 and 5, the total chronic levels of COPQ have been reported to be as high as 20 percent or more of the costs of goods sold. This number varies by type of industry and organization. It is not unusual for these costs at times to exceed profit or be a major contributor to losses. In any case, the average overall level is appalling (because it is substantial and *avoidable*), and the toll it takes on the organization can be devastating. COPQ is a major driver of many cost-cutting initiatives, not only because it can be so destructive if left unaddressed but also because savings realized by reducing COPQ directly affect the bottom line. Furthermore, the savings continue, year after year, as long as remedial improvements are irreversible, or controls are placed on reversible improvements.
2. It makes good business sense that mysterious and chronic causes of waste must be discovered, removed, and prevented from returning. Breakthrough improvement becomes the preferred initial method of attack because of its ability to uncover and remove specific root causes and to hold the gains—it is designed to do just that. One could describe breakthrough improvement methodology as applying the scientific method to solving performance problems. Breakthrough improvement methodology closely resembles the medical model of diagnosis and treatment.
3. *Chronic and continuous change.* Another reason why breakthroughs are required for organizational survival is the state of chronic accelerating change found in today's business environment. Unrelenting change has become so powerful and so pervasive that no constituent part of an organization finds itself immune from its effects for

long. Because any or all components of an organization can be threatened by changes in the environment, if an organization wishes to survive, it is most likely to be forced into creating basic changes that are powerful enough to bring about accommodation with new conditions. Performance breakthroughs, consisting as it does of several specific types of breakthrough in various organization functions, is a powerful approach that is capable of determining countermeasures sufficiently effective to prevail against the inexorable forces of change. An organization may have to re-invent itself. It may even be driven to reexamine, and perhaps modify, its core products, business, service or even its customers.

4. *Without continuous improvement, organizations die.* Another reason why breakthroughs are essential for organizational survival is found in knowledge derived from scientific research into the behavior of organizations. Leaders can learn valuable lessons about how organizations function and how to manage them by examining open systems theory. Among the more important lessons taught by this theory is the notion of *negative entropy*. Negative entropy refers to characteristics that human organizations share with biological systems such as the living cell, or the living organism (which is a collection of cells). *Entropy* is the tendency of all living things—and all organizations—to head toward their own extinction. Negative entropy consists of countermeasures that living systems and social systems take to stave off their own extinction. Organisms replace aging cells, heal wounds, and fight disease. Organizations build up reserves of energy (backlogs and supplies) and constantly replace expended energy by acquiring more energy (sales and raw materials) from their environment. Eventually, living organisms lose the race. So do organizations if they do not continually adapt, heal "wounds" (make performance breakthrough improvements), and build up reserves of cash and goodwill. The Juran Transformation Model is a means by which organizations can stave off their own extinction.

Systems Thinking and Transformational Change

Organizations are like living organisms. They consist of a number of subsystems, each of which performs a vital specialized function that makes specific, unique, and essential contributions to the life of the whole. A given individual subsystem is devoted to its own specific function such as design, production, management, maintenance, sales, procurement, and adaptability. One cannot carry the biological analogy very far because living organisms separate subsystems with physical boundaries and structures (e.g., cell walls, the nervous system, the digestive system, the circulatory system, etc.). Boundaries and structure of subsystems in human organizations, on the other hand, are not physical; they are repetitive events, activities, and transactions. The repetitive patterns of activities are, in effect, the work tasks, procedures, and processes carried out by organizational functions. Open systems theorists call these patterns of activities roles. A role consists of one or more recurrent activities out of a total pattern of activities which, in combination, produce the organizational output.

Roles are maintained and carried out in a repetitive, relatively stable manner by means of mutually understood sets of expectations and feedback loops, shown in Figure 9.2, The Triple Role Open Systems theory and Juran's model focuses particularly on the technical methods, human relationships, organization structures, and interdependence of functional roles associated with these activities and transactions. Detailed knowledge of the repetitive transactions between the organization and its environment, and also within the organization itself, is essential in accomplishing breakthroughs because these transactions determine the effectiveness and efficiency of performance.

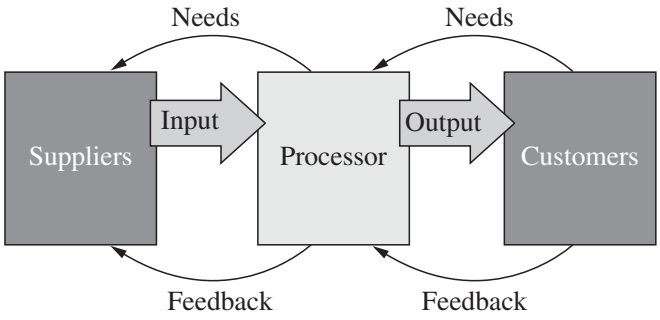

Figure 9.2 The triple role. (*Juran Institute, Inc. 2009, p. 8.*)

Figure 9.2 shows a model that applies equally to an organization as a whole, to individual subsystems and organizational functions (e.g., departments and workstations within the organization, and to individual organizational members performing tasks in any function or level. All these entities perform three more or less simultaneous roles, acting as supplier, processor, and customer. Acting as a processor, charged with the duty of transforming imported energy, organizations receive raw materials—goods, information, and/or services—from their suppliers, who may be located inside or outside the organization. The processor's job consists of transforming the received things into a new product of some kind—goods, information, or service. In turn, the processor supplies the product to his or her customers who may be located within or outside the organization.

Each of these roles requires more than merely the exchange of things. Each role is linked by mutually understood expectations (i.e., specifications, work orders, and procedures) and feedback as to how well the expectations are being met (i.e., complaints, quality reports, praise, and rewards). Note that in the diagram, the processor must communicate (shown by arrows) to the supplier a detailed description of his or her needs and requirements. In addition, the processor provides the supplier with feedback on the extent to which the expectations are being met. This feedback is part of the control loop and helps to ensure consistent adequate performance by the supplier. The customer bears the same responsibilities to his or her processors who, in effect, are also suppliers (not of the raw materials but of the product).

When defects, delays, errors, or excessive costs occur, causes can be found somewhere in the activities performed by suppliers, processors, and customers, in the set of transactions between them, or perhaps in gaps in the communication of needs and feedback. Breakthrough efforts must uncover the precise root causes by deep probing and exploration. If the causes are really elusive, discovering them may require placing the offending repetitive process under a microscope of unprecedented power and precision, as is done in Six Sigma. Performance excellence initiatives require that all functions and levels be involved, at least to some extent, because each function's performance is interrelated and dependent to some degree on all other functions. Moreover, a change in the behavior of any one function will have some effect on all the others, even though it may not be apparent at the time. This interrelatedness of all functions has practical day-to-day implications for a leader at any level, that is, the imperative of using "systems thinking" when making decisions, particularly decisions to make changes.

Because an organization is an open system, its life depends on (1) successful transactions with the organization's external environment and (2) proper coordination of the organization's various specialized internal functions and their outputs.

The proper coordination and performance of the various internal functions is dependent on the management processes of planning, controlling, and improving and on human factors such as leadership, organizational structure, and culture. To manage in an open system (such as an organization), management at all levels must think and act in systems terms. Managers must consider the impact of any proposed change not only upon the whole organization but also the impact on the interrelationships of all the parts. Failure to do so, even when changing seemingly little things, can make some pretty big messes. Leaders need to reason as follows: "If there is to be a change in *x*, what is required (inputs) from all functions to create this change, and how will *x* affect each of the other functions, and the total organization as well (ultimate output/results)?" Organizations will not change until the people in them change, regardless of the breakthrough approach.

There are three important lessons learned from the experience of the authors:

1. *All organizations need a systematic approach to ensure that change happens.* The problems that appear in one function or step in a process often have their origin upstream from that function or step in the process. People in a given work area cannot necessarily solve the problem in their own work area by themselves—they need to involve others in the problem-solving process. Without systematic involvement of the other functions, suboptimization will occur. Suboptimization results in excess costs and internal customer dissatisfaction—the exact opposite of what is intended.
2. *Change can only be created with active participation of all employees from the top on down and over time.* This includes not only individuals who are the source of a problem but also those affected by the problem and those who will initiate changes to remedy the problem (usually those who are the source of the problem, and perhaps others).
3. *Functional change alone is not sufficient to transform an organization.* Breakthroughs attempted in isolation or within a structure from the whole organization and without systems thinking can easily create more problems than existed at the start of the breakthrough attempt.

Attempts to bring about substantial organizational change such as performance excellence requires not only changing the behavior of individuals (as might be attempted by training) but also of redefining their roles in the social system. This requires, among other things, changing the expectations that customers have for their processors and changing expectations that processors have for their suppliers. In other words, performance breakthroughs require a capability of organizational design to produce consistent, coordinated behavior to support specific organizational goals. Modifications will likely also be made to other elements that define roles such as job descriptions, job fit, work procedures, control plans, other elements of the quality system, and training. To achieve a breakthrough, it is not sufficient simply to train a few Black Belts in the martial arts as experts and complete a few projects. Although this will probably result in some improvement, it is unlikely to produce long-term culture change and sustainability. The authors believe that too many organizations are settling for simple improvements when they should be striving for breakthroughs.

As we have seen, attaining a performance excellence state consists of achieving and sustaining beneficial changes. It is noteworthy that having a bright idea for a change does not, by itself, make change actually happen. People must understand why the change is needed and see the impact it will have on them before they can change what they do and perhaps how they do it. Beneficial change is often resisted, sometimes by the very persons

who could benefit most from it, especially if they have been successful in doing things the usual way. Leading change can be a perplexing and challenging undertaking. Accordingly, individuals trying to implement change should acquire know-how in how to do it.

Breakthroughs in Leadership and Management

Breakthroughs in leadership occur when managers answer two basic questions:

1. How does management set performance goals for the organization and motivate the people in the organization to reach them and be held accountable?
2. How do managers best use the power of the workforce and other resources in the organization and how should they best manage them?

Issues with leadership are found at *all* levels, not just at the top of an organization. A breakthrough in leadership and management results in an organization characterized by unity of purpose and shared values as well as a system that enables engagement of the workforce.

Each work group knows what its goals are and, specifically, what performance is expected from the team and the individuals. Each individual knows specifically what he or she is to contribute to the overall organizational mission and how his or her performance will be measured. Few erratic or counterproductive behaviors occur. Should such behaviors occur, or should conflict arise, guidelines to behavior and decision-making are in place to enable relatively quick and smooth resolution of the problem. There are two major elements to leadership: (1) leaders must decide and clearly communicate where they want their employees to go; and (2) leaders must entice them to follow the path by providing an understanding of why this is a better way. In this handbook, the words "leader" and "manager" do not necessarily refer to different persons. Indeed, most leaders are managers, and managers should be leaders. The distinctions are matters of intent and activities, not players. Leadership can and should be exercised by managers; leaders also need to manage. If leadership consists of influencing others in a positive manner that attracts others, it follows that those at the top of the managerial pyramid (CEOs and C-Suite) can be the most effective leaders because they possess more formal authority than anyone else in an organization. In fact, top managers are usually the most influential leaders. If dramatics change, such as introducing Lean Six Sigma into an organization, the most effective approach by far is for the CEO to lead the charge. Launching Lean Six Sigma is helped immensely if other leaders, such as union presidents also lead the charge. The same can be said if senior and middle managers, first-line supervisors, and leaders of non-management work crews "follow the leader" and support a performance excellence program by word and actions. Leadership is not dictatorship because dictators make people afraid of behaving in "incorrect" ways, and perhaps they occasionally provide public treats (e.g., free gasoline, for example, as has happened in Turkmenistan); freeing prisoners; or staging public spectacles that, together with propaganda, are designed to make people follow the leader. Dictators do not really get people to want to behave "correctly" (what the dictator says is correct); the people merely become afraid not to.

The Roles of Leaders to Attain a Breakthrough in Leadership

Strategic Planning and Deployment: Moving from Good to Great

The first step in strategic planning is to determine the organization's mission. (What business are we in? What services do we provide?) Next, a vision for the desired future state of the organization is formulated and published (e.g., "We will become the supplier of choice,

worldwide, of product X or service Y."). After proclaiming the basic reason for the organization's existence, and the overall general goal the organization seeks to achieve in the future, senior management generates a few key strategies the organization is to implement to fulfill the mission and realize the vision (e.g., ensure a reliable source of high-quality raw materials, ensure a stable well-qualified workforce at all levels for the foreseeable future, and/or reduce our overall costs of poor quality by 50 percent of last year's annual cost by the end of the year). Now the process becomes more precise. For each key strategy, a small number of quantified strategic goals (targets) are listed, a few that can be accomplished by the resources and people available. These quantified strategic goals are further divided into goals for this year, goals for the next two years, and so on. Finally, for each quantified strategic goal, a practical number of operational goals are established that describe exactly who is to do exactly what to reach each specific strategic goal. Normally, operational goals are specific projects to be accomplished (such as Six Sigma projects), specific performance targets to be reached by each function or work group, for example.

Strategic deployment is the process of converting goals into specific precise actions, each action designed to realize a specific goal. Deployment occurs in two phases: one phase is *during* the strategic planning process; the other phase is *after* the strategic plan is completed. During the strategic planning process, after the management team determines its key strategies, the team circulates these strategies to others in the organization: department heads, functional heads, process owners, and the like. They, in turn, may circulate the strategies further out to supervisors, team leaders, and so on. These individuals, in turn, may circulate the strategies to everyone they supervise. Each party is asked to contribute ideas and suggestions concerning what activities could be undertaken to carry out the strategies, what the specific quantified strategic goals should be, and what resources would be required. These responses are conveyed to the senior management team, who use the responses to promulgate more specific strategic and operational goals. This exchange of proposed activities to reach goals may take place several times. Some individuals call these iterations and reiterations "catch ball." With each cycle, various goals are refined, becoming more specific, more practical, and quantified. Finally, a set of precise strategic and operational goals emerges, each with owners. In addition, metrics are devised by which to measure performance toward goals and to provide managers at all levels with a scorecard of progress. Most significantly, these goals have been established with the participation of leaders who will be responsible for carrying them out and be accountable for the results.

Emerging from this event is an organization united in its commitment to reaching the same goals. All functions and levels have been included. This is highly significant because leadership is not considered to be something exercised by one person at the top of an organization. It is ideally performed at any level and in any function, by anyone who influences others. With a well-deployed strategic plan, specific acts of leadership (attempts to influence others) should be relatively consistent from leader to leader, from function to function, and from time to time. Decisions made at different levels or in different functions should not conflict with one another very often. That, at least, is the ideal.

Providing Employee Empowerment and Self-Control

When managers do everything they can to provide the means for everyone to be empowered or attain a state of self-control, this also will greatly enhance their credibility and the level of trust followers will feel toward them. This will happen because when an individual is in self-control, that individual has at his or her disposal all of the elements necessary to be successful on his or her job. When a leader does this, followers will feel gratitude and respect toward that leader and will be inclined to follow that leader because "My leader comes through for me. My leader doesn't just talk; my leader delivers!"

A brief review of these elements follows because they can be so instrumental in demonstrating leadership. A person is in a state of self-control if that person

- *Knows exactly what is expected:* the standard of performance for the process; who does what and who decides what and to know how he or she is doing compared to the standards
- Receives timely feedback to have the ability to *regulate the process*
- Has a capable process that includes the necessary tools, equipment, materials, maintenance, time, and the authority to *adjust the process when it is nonconforming*

A person in a state of self-control has, at his or her disposal, all the means necessary to perform work tasks successfully. Management must provide the means because only management controls the required resources needed to put someone in self-control. Persons who have long been suffering from lack of self-control and its associated inability, through no fault of their own, to perform as well as they would like, are especially grateful to a leader/manager who relieves them from the suffering by making self-control possible. These persons come to respect and trust such a manager, and they tend to become an enthusiastic follower of that manager, mindful of the good things—including enhanced self-confidence and self-esteem—that have flowed from that manager.

Performing Periodic Audits

Conducting periodic audits performed by leaders and managers is a superb method of demonstrating commitment to and support for an effort to change. Leaders and managers, especially senior executive managers, enhance their credibility and power to lead by personally walking around the organization and talking to the people about what they do, and how they do it. A management audit has both formal and informal aspects. The formal aspect consists of asking each person being audited to answer certain specific written questions and to produce data and other evidence of performance that conforms to the formal controls. The informal aspect is simply talking with the people who are being audited about what is on their mind and sharing with them what is on the manager's mind. The management audit is roughly the equivalent of senior generals visiting the troops in the field. It is a chance for managers to demonstrate their interest in how things are going: what is going well and/or what needs corrective action. It is a splendid opportunity to listen to what people have to say and to show respect for them. If managers follow up on the suggestions and complaints they hear, that is yet another way to demonstrate that they care enough about "the troops" to provide them with needed support and assistance. It grants to anyone in the organization a direct line of communication with the top, something that makes many people feel important, and motivates them to keep performing at their best. Importantly, the managers' ability to lead is reinforced.

Conferring Public Rewards and Recognition

Leaders can assist their followers to take desired new norms and patterns of behavior upon themselves as their own, if doing so is rewarding to the followers consistently and over time. The effect of rewards and recognition can be magnified when

- Rewards and recognition are awarded in public, with fanfare and ceremony.
- Leaders are in the presence of individuals whose behavior the leader is seeking to influence.
- The award is accompanied by an explanation of its connection to a specific desired new behavior toward which the leader is attempting to extract from the followers. For example, after launching a Six Sigma initiative, your organization decides to

have an all-organization special assembly to recognize the seven original Six Sigma project teams. Each team makes a presentation of its just-completed project, complete with slides, handouts, and exhibits.

Carrying Out the Nondelegable Managerial Practices Stated Previously in the Handbook

- Creating and serving on an executive council to lead and coordinate the performance breakthrough activities
- Forming policy to allow time to participate in breakthrough teams
- Establishing organizational infrastructure
- Providing resources (especially time)
- Reviewing the progress of performance toward goals, including the progress of projects
- Removing obstacles, dissolving resistance, and providing support and other corrective action if progress is too slow

Creating and serving on an executive council to lead and coordinate breakthrough activities. An executive council probably exists already in your organization.

Provide Resources to Continually Innovate and Improve

Breakthroughs are produced by teams, project by project. These teams are assigned goals to attain by using project charters. Each project is formally chartered, in writing, by the Executive Council. The Executive Council also provides the project teams with the people and other resources the teams need to carry out their missions.

The manager's role is one of managing the organization so that high standards are met, proper behavior is rewarded—or individuals are held accountable—facilities and processes are maintained, and employees are motivated and supported. Performance toward goals is measured and tracked for all functions and levels (i.e., overall organization, function, division, department, work group, and individual). Performance metrics are regularly summarized, reported, and reviewed to compare actual performance with goals. Management routinely initiates corrective action to address poor performance or excessively slow progress toward goals. Actions may include establishing performance breakthrough improvement projects, providing additional training or support, clearing away resistance, providing needed resources, and performing disciplinary action. Leaders and management must do the following:

- Create and maintain systems and procedures that ensure the best, most efficient, and effective performance of an organization in all functions and levels.
- Reward (and hold people accountable, if necessary) appropriate behavior.
- Consistently uphold and demonstrate high standards.
- Focus on stability.

Breakthroughs in Organizational Structure

Creating a breakthrough in organizational structure does the following:

- Designs and puts into place the organization's operational systems (i.e., quality system, orientation of new employees, training, communication processes, and supply chains)

- Designs and puts into practice a formal structure that integrates each function with all the others and sets forth relative authority levels and reporting lines (e.g., organization charts and the means to manage across it)
- Aligns and coordinates the respective interdependent individual functions into a smooth functioning, integrated organization

Creating a breakthrough in organization structure is a response to the basic question: "How do I set up organizational structures and processes to reap the most effective and efficient performance toward our goals?"

Trends in this area are clear. More and more work is performed by project teams. Job tasks may be described by *team project* descriptions rather than, or in addition to, *individual* job descriptions. Performance evaluation is often related to the accomplishments of one's team instead of or in addition to, one's individual accomplishments.

Management structure consists of cross-functional *processes* that are managed by process owners, as well as vertical *functions* that are managed by functional managers. Where both vertical and horizontal responsibility exists, potential conflicts are resolved by matrix mechanisms that require negotiated agreements by the function manager and the cross-functional (horizontal) process owner.

Unity and consistency in the operation of *both* cross-functional processes and vertical functions is essential to creating performance breakthroughs and is essential to continued organizational survival. All members of leadership teams at all levels simply must be in basic agreement as to goals, methods, priorities, and styles. This is especially vital when attempting performance breakthrough improvement projects because the causes of so many performance problems are cross functional, and the remedies to these problems must be designed and carried out cross functionally. Consequently, one sees in a Lean or Six Sigma implementation, for example, quality or executive councils, steering committees, champions (who periodically meet as a group), cross-functional project teams, project team leaders, Black Belts, and Master Black Belts. These roles all involve dealing with change and teamwork issues. There is also a steady trend toward fewer authority or administrative levels and shorter reporting lines.

> The rate of change in the business world is not going to slow down anytime soon. If anything, competition in most industries will probably speed up over the next few decades. Enterprises everywhere will be presented with even more terrible hazards and wonderful opportunities, driven by the globalization of the economy along with related technological and social trends (John P. Kotter 1996).

There are three accepted basic types of organization for managing any function work and one newer, emerging approach. The most traditional and accepted organization types are functional, process, and matrix. They are important design baselines because these organizational structures have been tested and studied extensively and their advantages and disadvantages are well known. The newer, emerging organizational designs are network organizations.

Function-Based Organization

In a function-based organization, departments are established based on specialized expertise. Responsibility and accountability for process and results are usually distributed piecemeal among departments. Many firms are organized around functional departments that have a well-defined management hierarchy. This applies both to the major functions (e.g., human resources, finance, operations, marketing, and product development) and also to sections within a functional department. Organizing by function has certain advantages—clear responsibilities and efficiency of activities within a function. A function-based organization typically develops and nurtures talent and fosters expertise and excellence within the functions.

Therefore, a function-based organization offers several long-terms benefits. However, this organizational form also creates "walls" between the departments. These walls—sometimes visible, sometimes invisible—often cause serious communications barriers. However, function-based organizations can result in a slow, bureaucratic decision-making apparatus as well as the creation of functional business plans and objectives that may be inconsistent with overall strategic business unit plans and objectives. The outcome can be efficient operations *within* each department but with less-than-optimal results delivered to external (and internal) customers.

Business Process–Managed Organizations

Many organizations are beginning to experiment with an alternative to the function-based organization in response to today's "make it happen fast" world. Businesses are constantly redrawing their lines, work groups, departments, and divisions, even entire companies, trying to increase productivity, reduce cycle-time, enhance revenue, or increase customer satisfaction. Increasingly, organizations are being rotated 90 degrees into processed-based organizations.

In a process organization, reporting responsibilities are associated with a process, and accountability is assigned to a process owner. In a process-based organization, each process is provided with the functionally specialized resources necessary.

This eliminates barriers associated with the traditional function-based organization, making it easier to create cross-functional teams to manage the process on an ongoing basis.

Process-based organizations are usually accountable to the business unit or units that receive the benefits of the process under consideration. Therefore, process-based organizations are usually associated with responsiveness, efficiency, and customer focus.

However, over time, pure process-based organizations run the risk of diluting and diminishing the skill level within the various functions. Furthermore, a lack of process standardization can evolve, which can result in inefficiencies and organizational redundancies. Additionally, such organizations frequently require a matrix-reporting structure, which can result in confusion if the various business units have conflicting objectives. The matrix structure is a hybrid combination of functional and divisional archetypes.

Merging Functional Excellence with Process Management

What is required, however, is an organization that identifies and captures the benefits of supply chain optimization in a responsive, customer-focused manner while promoting and nurturing the expertise required to manage and continuously improve the processes on an ongoing basis.

This organization will likely be a hybrid of functional and process-based organizations, with the business unit accountable for objectives, priorities, and results, and the functional department accountable for process management and improvement and resource development.

According to the late Dr. Frank Gryna, the Center for Quality at the University of Tampa, Florida, the organization of the future will be influenced by the interaction of two systems that are present in all organizations: the technical system (equipment, procedures) and the social system (people, roles)—thus the name "sociotechnical systems" (STSs).

Much of the research on sociotechnical systems has concentrated on designing new ways of organizing work, particularly at the workforce level. For example, supervisors are emerging as "coaches"; they teach and empower rather than assign and direct. Operators are becoming "technicians"; they perform a multiskilled job with broad decision-making, rather than a narrow job with limited decision-making. Team concepts play an important role in

these new approaches. Some organizations now report that, within a given year, 40 percent of their people participate on a team; some organizations have a goal of 80 percent. Permanent teams (e.g., process team, self-managing team) are responsible for all output parameters, including quality; ad hoc teams (e.g., a quality project team) are typically responsible for improving quality. The literature on organizational forms in operations and other functions is extensive and increases continuously. For a discussion of research conducted on teams, see Katzenbach and Smith (1993). Mann (1994) explains how managers in process-oriented operations need to develop skills as coaches, developers, and "boundary managers." The attributes associated with division managers, functional managers, process managers, and customer service network managers are summarized in Table 9.1. There is emerging evidence that divisional and functional organizations may not have the flexibility to adapt to a rapidly changing marketplace or to technological changes.

Design a system that promotes employee empowerment and involvement. Traditional management was based on Frederick Taylor's teachings of specialization. At the turn of the twentieth century, Taylor recommended that the best way to manage manufacturing organizations was to standardize the activity of general workers into simple, repetitive tasks and then closely supervise them (Taylor 1947). Workers were "doers"; managers were "planners." In the first half of the twentieth century, this specialized system resulted in large productivity increases and a very productive economy. As the century wore on, workers became more educated, and machinery and instruments more numerous and complicated. Many organizations realized the need for more interaction among employees. The training and experience of the workforce was not being used. Experience in team systems, where employees worked together, began in the latter half of the twentieth century, although team systems did not seriously catch on until the mid-1970s as pressure mounted on many organizations to improve performance. Self-directed teams began to emerge in the mid-1980s. For maximum effectiveness, the work design should require a high level of employee involvement.

Attributes of Roles	Division Manager	Function Manager	Process Manager	Network Leader
Strategic orientation	Entrepreneurial	Professional	Cross-functional	Dynamic
Focus objectives	Customer adaptability	Internal efficiency	Customer effectiveness	Variable adaptability, speed
Operational responsibility	Cross-functional	Narrow, parochial	Broad, pan-organizational	Flexible
Authority	Less than responsibility	Equal to responsibility	Equal to responsibility	Ad hoc, based on leadership
Interdependence	May be high	Usually high	High	Very high
Personal style	Initiator	Reactor	Active	Proactive
Ambiguity of task	Moderate	Low	Variable	Can be high

(*Sources*: The first two columns are adapted from the work of Financial Executive Research Foundation, Morristown, NJ. The last two columns represent the work of Edward Fuchs.)

TABLE 9.1 Attributes of Various Roles

Empowerment and Commitment

Workers who have been working under a directive command management system where the boss gives orders and the worker carries them out cannot be expected to adapt instantly to a highly participative, high-performance work system. There are too many new skills to learn and too many old habits to overcome. According to reports from numerous organizations that have used high-performance work systems, such systems must evolve. This evolution is carefully managed, step by step, to prepare team members for the many new skills and behaviors required of them.

The first stage of involvement is the consultative environment, in which the manager consults the people involved, asks their opinions, discusses their opinions, then takes unilateral action. A more advanced state of involvement to appoint a special team or project team to work on a specific problem, such as improving the cleaning cycle on a reactor. This involvement often produces in team members' pride, commitment, and sense of ownership.

An example of special quality teams is the "blitz team" from St. Joseph's Hospital in Paterson, NJ. Teams had been working for about a year as a part of the total quality management (TQM) effort there. Teams were all making substantial progress, but senior management was impatient because the TQM was moving too slowly. Recognizing the need for the organization to produce quick results in the fast-paced marketplace, the team developed the blitz team method (from the German word for lightning). The blitz team approach accelerated the standard team problem-solving approach by adding the services of a dedicated facilitator. The facilitator reduced elapsed time in three areas: problem-solving focus, data processing, and group dynamics.

Because the facilitator was very experienced in the problem-solving process, the team asked the facilitator to use that experience to provide more guidance and direction than is normally the style on such teams. The result was that the team was more focused on results and took fewer detours than usual. In the interest of speed, the facilitator took responsibility for the processing of data between meetings, thus reducing the time that elapsed between team meetings. Furthermore, the facilitator managed the team dynamics more skillfully than might be expected of an amateur in training within the organization. The team went from first meeting to documented root causes in one week. Some remedies were designed and implemented within the next few weeks.

The team achieved the hospital's project objectives by reducing throughput delays for emergency room (ER) patients. ER patients are treated more quickly, and worker frustrations have been reduced (Niedz 1995). Special teams can focus sharply on specific problems. The team's success depends on assigning team people who are capable of implementing solutions quickly.

Project Teams

Employees need time to organize work that should be accomplished by the team. Time is necessary to organize and make sure the team members know what they are doing, why they are doing it, how to organize the work, and who will be involved. However, schedules are so short; there is never time to organize the work team.

Many teams start working, believing they know what to do, and taking direct action. They do not have time to get support from others, or to determine the right goals for the team, or to create and implement a plan that allows them to achieve the proposed goals or to plan how to work together. Nevertheless, what these teams all have in common is that no one understands in the same way what they are doing, why, how, and with whom. Linking the effort of the team to five critical success factors can solve this problem.

Leadership Style

Empowered team members share leadership responsibilities, sometimes willingly and sometimes reluctantly. Decision-making is more collaborative, with consensus as the objective. Teams work toward win–win agreements. Teamwork is encouraged. Emphasis is more on problem solution and prevention, rather than on blame. During a visit to Procter & Gamble's plant in Foley, FL, the host employee commented that in the past he would not have believed he would ever be capable of conducting this tour. His new leadership roles had given him confidence to relate to customers and other outsiders.

Citizenship

Honesty, fairness, trust, and respect for others are more readily evident. In mature teams, members are concerned about each other's growth in the job (i.e., members reaching their full potential). Members share their experiences more willingly and coach each other, as their goal is focused on the team success, rather than on their personal success. Members recognize and encourage each other's (and the team's) successes more readily.

Reasons for High Commitment

As previously stated, empowered team members have the authority, capability, desire, and understanding of the organization's goals. In many organizations, they believe that this makes members feel and behave as if they were owners and makes them more willing to accept greater responsibility. Empowered team members also have greater knowledge, which further enhances their motivation and willingness to accept responsibility.

Means of Achieving High Performance

It has been observed that as employees accept more responsibility and have more motivations, and greater knowledge, they freely participate more toward the interests of the business. They begin to truly act like owners, displaying greater discretionary effort and initiative. Empowered team members have the authority, the capability, and the desire and understand the organization's direction. Consequently, members feel and behave as if they were owners and are willing to accept greater responsibility. They also have greater knowledge, which further enhances their motivation and willingness to accept responsibility.

Enough progress has been made with various empowered organizations that we can now observe some key features of successful efforts. These have come from experiences of various consultants, visits by the authors to other companies, and published books and articles. These key features can help us learn how to design new organizations or redesign old ones to be more effective. The emphasis is on key features, rather than a prescription of how each organization is to operate in detail. This list is not exhaustive, but it is a helpful checklist, useful for a variety of organizations.

Focus on External Customers

The focus is on the external customers, their needs, and the products or services that satisfy those needs.

- The organization has the structure and job designs in place to reduce variation in process and product.
- There are few organizational layers.
- There is a focus on the business and customers.
- Boundaries are set to reduce variances at the source.
- Networks are strong.

- Communications are free flowing and unobstructed.
- Employees understand who the critical customers are, what their needs are, and how to meet customer needs with their own actions. Thus, all actions are based on satisfying the customer. The employees (e.g., operator, technicians, and plant manager) understand that they work for the customer rather than for the plant manager.
- Supplier and customer input are used to manage the business.

In empowered organizations, managers create an environment to make people great, rather than control them. Successful managers are said to "champion" employees and make them feel good about their jobs, their organization, and themselves. When he was head of the Nissan plant in Smyrna, TN, Marvin Runyon stressed that "management's job is to provide an environment in which people can do their work" (Bernstein 1988).

Organization and Knowledge Management

Broken down into its simplest form, the learning process consists of observation–assessment–design–implementation, which can vary along two main dimensions:

- *Conceptual learning*. The process of acquiring a better understanding of cause and effect relationship, leading to "know-why."
- *Operational learning*. The process of obtaining validation of action outcome links, leading to "know-how."

Professor M. Lapré, Assistant Professor of Operations Management at Owen Graduate School of Management at Vanderbilt University, Nashville, TN, and L. Van Wassenhove, the Henry Ford Chaired Professor of Manufacturing at INSEAD (Institut Européen d'Administration des Affaires), a multicampus international graduate business school and research institution, show that it is possible to accelerate factories' learning curves through focused quality and productivity improvement efforts.

Breakthroughs in Current Performance

Breakthroughs in current performance (or improvement) do the following:

- Significantly improve current levels of results that an organization is currently attaining. This happens when a systematic project-by-project improvement system of discovering root causes of current chronic problems and implements solutions to eliminate them.
- Devise changes to the "guilty" processes and reduce the costs of poorly performing processes.
- Install new systems and controls to prevent the return of these root causes.

A system to attain breakthroughs in current performance addresses the question "How do we reduce or eliminate things that are wrong with our products or processes, and the associated customer dissatisfaction and high costs (waste) that consumes the bottom line?" A breakthrough improvement program addresses *quality* problems—failures to meet specific important needs of specific customers, internal and external. (Other types of problems are addressed by other types of breakthroughs.) Lean, Six Sigma, Lean Six Sigma, Root Cause Corrective Action, and other programs need to be part of a systematic approach to improve current performance. These methods address a few specific types of things that always go wrong:

- Excessive number of defects
- Undue number of delays
- Unnecessary long cycle times
- Unwarranted costs of the resulting rework, scrap, late deliveries, dissatisfied customers, replacement of returned goods, loss of customers, and loss of goodwill

Lean and Six Sigma teams are all methods to improve performance. They are all project based and require multifunctional teams to improve current levels of performance. Each requires a systematic approach to complete the projects.

A systematic approach to improving performance of processes is to

- Define the problem (performed by the champions and executive council)
- Measure (performed by the project team)
- Analyze (performed by the project team)
- Improve (performed by the project team, often with help of others)
- Control (performed by the project team and the operating forces is)

Breakthroughs in current levels of performance problems are attained using these methods. The Lean and Six Sigma method will place your ailing processes under a microscope of unprecedented precision and clarity and make it possible to understand and control the relationships between input variables and desired output variables.

Your organization does have a choice as to what "system" to bring to bear on your problems: a "conventional" weapon system (quality improvement) or a "nuclear" system (Six Sigma). The conventional system is perfectly effective with many problems and much cheaper than the more elaborate and demanding nuclear system. The return on investment is considerable from both approaches, but especially so from Six Sigma if your customers are demanding maximum quality levels.

Breakthroughs in current performance solve problems such as excessive number of defects, excessive delays, excessively long time cycles, and excessive costs.

Breakthroughs in Culture

The result of completing many improvements creates a habit of improvement in the organization. Each improvement starts to create a quality culture because collectively it does the following:

- Creates a set of new behavior standards and social norms that best supports organizational goals and climate.
- Instills in all functions and levels the values and beliefs that guide organizational behavior and decision-making.
- Determines organizational cultural patterns such as style (e.g., informal versus formal, flexible versus rigid, congenial versus hostile, entrepreneurial/risk-taking versus passive/risk adverse, rewarding positive feedback versus punishing negative feedback), extent of internal versus external collaboration, and high energy/morale versus low energy/morale. Performance breakthrough in culture is a response to the basic question: "How do I create a social climate that encourages organization members to align together eagerly toward the organization's performance goals?"

As employees continue to see their leadership "sticking to it" culture change happens. An organization is not yet at a sustainable level yet or transformational change. There are still issues that must be addressed, including

- Reviewing the organization's vision, mission and values
- Orienting new employees and training practices
- Rewarding and recognizing policies and practices
- Human resource policies and administration
- Quality and customer satisfaction policies
- Fanatic commitment to customers and their satisfaction
- Commitment to continuous improvement
- Standards and conduct codes, including ethics
- No "sacred cows" regarding people, practices, and core business content
- Community benefit and public relations

An organization's culture exerts an extraordinarily powerful impact on organizational performance. The culture determines what is right or wrong, what is legitimate or illegitimate, and what is acceptable or unacceptable. Consequently, a breakthrough in the culture is profoundly influential in achieving a performance breakthrough. It is also probably the most difficult and time-consuming breakthrough to make happen. It is also so widely misunderstood that attempts to pull it off often fail.

A breakthrough in culture (1) creates a set of behavior standards, and a social climate that supports organizational goals, (2) instills in all functions and levels the values and beliefs that guide organizational behavior and decision-making, and (3) determines organizational cultural patterns such as *style* (informal versus formal, flexible versus rigid, authoritarian top–down versus participative collaboration, management driven versus leadership driven, and the like), the organization's *caste system* (the relative status of each function), and the *reward structure* (who is rewarded for doing what).

Culture Defined

Your organization is a society. A society is "an enduring and cooperating social group whose members have developed organized patterns of relationships through interaction with each other" . . . a group of people engaged in a common purpose," according to Webster's. A society consists of habits and beliefs ingrained over long periods of time. Your workplace is a society, and, as such, it is held together by the shared *beliefs* and *values* that are deeply embedded in the personalities of the society's members. (A workplace whose workforce is segmented into individuals or groups who embody conflicting beliefs and values does not hold together. Various social explosions will eventually occur, including resistances, revolts, mutinies, strikes, resignations, transfers, firings, divestitures, and bankruptcies.)

Society members are rewarded for conforming to their society's beliefs and values—its norms—and they are punished for departing from them. Not only do norms encompass values and beliefs, they also include enduring systems of relationships, status, customs, rituals, and practices.

Societal norms are so strong and deeply embedded that they lead to customary patterns of social behavior sometimes called "cultural patterns." In the workplace, one can identify performance-determining cultural patterns such as participative versus authoritarian management styles, casual versus formal dress, conversational styles ("Mr./Ms." and "Sir/ Madam"

versus first names), and a high trust level that makes it safe to say what you really think versus low trust level/suspiciousness that restricts honest or complete communication and breeds game playing, deceit, and confusion.

What Does Culture Have to Do with Managing an Organization?

To achieve a performance breakthrough, it is desirable—if not necessary—that the organization's norms and cultural patterns support the organization's performance goals. Without this support, performance goals may well be diluted, resisted, indifferently pursued, or simply ignored. For these reasons, the characteristics of your organization's culture are a vital matter that your management needs to understand and be prepared to influence. As we shall see, this is easier said than done; but it *can* be done.

A timely example of the influence of culture on an organization's performance is provided by J. M. Juran. Here are excerpts from his description of a management challenge currently facing managers as it has for many years: getting acceptance on the shop floor for statistical control charts, typically a key element in the Control Phase of Six Sigma. (Control charts detect the pattern of variation exhibited by a repetitive process. They can provide a great deal of information about the performance of a process—information unobtainable from any other source. Control charts are widely used in manufacturing and in all kinds of repetitive transactional processes such as those found in hospitals and offices. Among other things, control charts inform the employee if and when to adjust the process, a feature that largely replaces the traditional practice of the employee making this decision. On top of that, control charts are based on the laws of probability and statistics, topics that are widely misunderstood or regarded as impenetrable mysteries.)

> There has been great difficulty in getting production operators and supervisors to accept control charts as a shop tool. I believe this to be a statement of fact, based on extensive firsthand observation of the shockingly high mortality rate of control charts when actually introduced on the shop floor. This difficulty is not merely a current phenomenon. We encountered it back in the late 1920s in the pioneering effort to use control charts on the production floor of the Hawthorne Works of the Western Electric Organization. Neither is it merely an American phenomenon, since I have witnessed the same difficulty in Western Europe and in Japan as well. . . . It is my belief that the failure of the control chart to secure wide acceptance on the factory floor is due mainly to lack of adaptation into the culture of the factory, rather than to technical weaknesses in the control chart. . . . There are a number of problems created by the control chart, as viewed by the shop supervisor:
>
> The control chart lacks "legitimacy" (i.e., it is issued by a department not recognized as having industrial legislative powers).
>
> The control chart conflicts with the specification, leaving the operator to resolve the conflict.
>
> The control chart is in conflict with other forms of data collection and presentation, leaving the operator to resolve the conflict.
>
> The control chart calls for a pattern of operator action that differs from past practice, but without solving the new problems created as a result of disturbing this past practice.

Legitimacy of the Metrics and the Control Chart

The human passion for "law and order" does not stop at the organization's gate. Within the plant, there is the same human need for a predictable life, free from unpleasant surprises. Applied to the workforce, this concept of law and order resolves into various principles:

- There must be one and only one personal supervisor (boss) to whom an employee is responsible.
- There is no limit to the number of impersonal bosses (manuals, drawings, routines), but each boss must be legitimate; that is, it must have clear official status.

- When there is a conflict between the orders of the personal boss and an impersonal boss, the former prevails.
- When there is a conflict between something "legitimate" and something not established as legitimate, the former prevails.

Dr. Juran stated, "There can be no quarrel with these principles, since they are vital to law and order on the factory floor. . . . ". . . Introduction of control charts to the factory floor results in a series of changes in the cultural pattern of the shop:

- A new source of industrial law is opened up, without clear evidence of its legitimacy.
- This new industrial law conflicts with long-standing laws for which there has been no clear repeal through recognized channels of law.
- New sources of factual information are introduced without clear disposition of old sources.
- New duties are created without clear knowledge of their effect on employees who are to perform those duties.

Conclusions

The introduction of modern techniques has an impact on the factory in two aspects:

1. The technical aspect, involving changes in processes, instrument records, and other technical features of the operation
2. The social aspect, involving changes in humans, status, habits, relationships, scale of values, language, and other features of the cultural pattern of the shop

The main resistance to change is due to the disturbance of the cultural pattern of the shop.

—J.M. Juran

How Are Norms Acquired?

New members of a society—a baby born into a family or a new employee hired into the workplace—are carefully taught who is who and what is what. In short, these new members are taught the norms and the cultural patterns of that particular society. In time, they discover that complying with the norms and cultural patterns can be satisfying and rewarding. Resistance or violation of the norms and cultural patterns can be very dissatisfying because it brings on disapproval, condemnation, and possibly punishment. If an individual receives a relatively consistent pattern of rewards and punishments over time, the beliefs and the behaviors being rewarded gradually become a part of that individual's personal set of norms, values, and beliefs. Behaviors that are consistently disapproved or punished will gradually be discarded and not repeated. The individual will have become socialized.

How Are Norms Changed?

Note that socialization can take several years to take hold. This is an important prerequisite for successfully changing an organization's culture that must be understood and anticipated by agents of change, such as senior management. The old patterns must be extinguished and replaced by new ones. This takes time and consistent, persistent effort. These are the realities. Consider what the anthropologist Margaret Mead has to say about learning new behaviors and beliefs:

> An effective way to encourage the learning of new behaviors and attitudes is by consistent prompt attachment of some form of satisfaction to them. This may take the form of consistent praise, approval, privilege, improved social status, strengthened integration with one's group, or material reward. It is particularly important when the desired change is such that the advantages are slow to materialize—for example, it takes months or even years to appreciate a change in nutrition, or to register the effect of a new way of planting seedlings in the increased yield of an orchard. Here the gap between the new behavior and results, which will not reinforce the behavior until they are fully appreciated, has to be filled in other ways.

She continues:

> The learning of new behaviors and attitudes can be achieved by the learner's living through a long series of situations in which the new behavior is made highly satisfying—without exception if possible—and the old not satisfying.
>
> New information psychologically available to an individual, but contrary to his customary behavior, beliefs, and attitudes, may not even be perceived. Even if he is actually forced to recognize its existence, it may be rationalized away, or almost immediately forgotten."
>
> . . . as an individual's behavior, beliefs, and attitudes are shared with members of his cultural group, it may be necessary to effect a change in the goals or systems of behavior of the whole group before any given individual's behavior will change in some particular respect. This is particularly likely to be so if the need of the individual for group acceptance is very great—either because of his own psychological make-up or because of his position in society.

Implications for achieving breakthroughs in culture are as follows:

To be most effective, the entire management team at all levels must share, exhibit, and reinforce desired new cultural norms and patterns of behavior—and the norms must be consistent, uninterrupted, and persistent.

Do not expect cultural norms or behavior to change simply because you publish the organization's stated values in official printed material or describe them in speeches or exhortations. Actual cultural norms and patterns may bear no resemblance at all to the values described to the public or proclaimed in exhortations. The same is true of the actual flow of influence compared to the flow shown on the organization chart. (New employees rapidly learn who is really who and what is really what, in contrast to and in spite of the official publicity.)

A forceful leader-manager can, by virtue of his or her personality and commitment, influence the behavior of individual followers in the *short term* with rewards, recognition, and selective exclusion from rewards. The authors know of organizations who, in introducing a Six Sigma or similar effort, have presented messages to their employees along the following lines:

> The organization cannot tell you what to believe, and we are not asking you to believe in our new Six Sigma initiative, although we hope you do. We can, however, expect you to behave in certain ways with respect to it. Therefore, let it be known that you are expected to support it, or at least get out of its way, and not resist. Henceforth, rewards and promotions will go to those who energetically support and participate in the Six Sigma activities. Those who do not support it and participate in it will not be eligible for raises or promotions. They will be left behind, and perhaps even replaced with others who do support it.

This is fairly strong language. Such companies often achieve some results in the short term. However, should a forceful leader depart without causing the new initiative to become embedded in the organization's cultural norms and patterns (to the extent that individual members have taken on these new values and practices as their own), it is not unusual for the new thrust to die out for lack of consistent and persistent reinforcement.

Resistance to Change

Curiously, even with such reinforcement, change—even beneficial change—will often be resisted. The would-be agent of change needs to understand the nature of this resistance and how to prevent or overcome it.

The example of the control chart case drew the conclusion that the main resistance to change is due to the disturbance of the cultural pattern of the shop when a change is proposed or attempted. People who are successful—and therefore comfortable—functioning in the current social or technical system do not want to have their comfortable existence disrupted, especially by an "illegitimate" change.

When a technical or social change is introduced into a group, group members immediately worry that their secure status and comfort level under the new system may be very different (worse) than under the current system. Threatened with the frightening possibility of losing the ability to perform well or losing status, the natural impulse is to resist the change. Group members have too much at stake in the current system. The new system will require them not only to let go of the current system willingly but also to embrace the uncertain, unpredictable new way of performing. This is a tall order. It is remarkable how profoundly even a tiny departure from cultural norms will upset society members.

What Does Resistance to Change Look Like?

Some resistance is intense, dramatic, and even violent. Dr. Juran reminds us of some examples: When fourteenth-century European astronomers postulated a sun-centered universe, this idea flew in the face of the prevailing cultural beliefs in an Earth-centered universe. This belief had been passed down for many generations by their ancestors, religious leaders, grandparents, and parents. (Furthermore, on clear days, one could see with one's own eyes the sun moving around the Earth.) Reaction to the new "preposterous" unacceptable idea was swift and violent. If the sun-centered believers are correct, then the Earth-centered believers are incorrect—an unacceptable, illegitimate, wrong-headed notion. To believe in the new idea required rejecting and tossing out the old. But the old was deeply embedded in the culture. So the "blasphemous" astronomers were burned at the stake.

Another example from Dr. Juran: When railroads converted from steam-powered to diesel-powered locomotives in the 1940s, railroad workers in the United States objected. It is unsafe, even immoral, they protested, to trust an entire trainload of people or valuable goods to the lone operator required to drive a diesel. Locomotives had "always" been operated by two people, an engineer who drove, and a fireman who stoked the fire. If one *were* incapacitated, the other could take over. But what if the diesel engineer had a heart attack and died? So intense were the resulting strikes that an agreement was finally hammered out to keep the fireman on the job in the diesels! Of course the railroad workers were really protesting the likely loss of their status and jobs.

Norms Helpful in Achieving a Cultural Transformation

Transforming a culture requires a highly supportive workforce. Certain cultural norms appear to be instrumental in providing the support needed. If these norms are not now part of your culture, some breakthroughs in culture may be required to implant them. Some of the more enabling norms are as follows:

A belief that the quality of a product or process is at least of equal importance, and probably of greater importance than the mere quantity produced. This belief results in decisions favoring quality: defective items do not get passed on down the line or out the door; chronic errors and delays are corrected.

A fanatical commitment to meeting customer needs. Everyone knows who his or her customers are (those who receive the results of their work), and how well he or she is doing at meeting those needs (They *ask*.). Organization members, if necessary, drop everything and go out of their way to assist customers in need.

A fanatical commitment to stretch goals and continuous improvement. There is always an economic opportunity for improving products or processes. Organizations who practice continuous improvement keep up with, or become better than, competitors.

Organizations that do not practice continuous improvement fall behind and become irrelevant or worse—go out of business. Six Sigma product design and process improvement is capable, if executed properly, of producing superb economical designs and nearly defect-free processes to produce them, resulting in very satisfied customers and sharply reduced costs. The sales and the savings that follow show up directly on the organization's bottom line.

A customer-oriented code of conduct and code of ethics. This code is published, taught in new employee orientations, and taken into consideration in performance ratings and in distributing rewards. Everyone is expected at all times to behave and make decisions in accordance with the code. The code is enforced, if needed, by managers at all levels. The code applies to everyone, even board members—perhaps especially to them considering their power to influence everyone else.

A belief that continuous adaptive change is not only good but necessary. To remain alive, organizations must develop a system for discovering social, governmental, international, or technological trends that could impact the organization. In addition, organizations will need to create and to maintain structures and processes that enable a quick, effective response to these newly discovered trends.

Given the difficulty of predicting trends in the fast-moving contemporary world, it becomes vital for organizations to have such processes and structures in place and operating. If you fail to learn and appropriately adapt to what you learn, your organization can be left behind very suddenly and unexpectedly and end up in the scrap heap. The many rusting, abandoned factories the world over testify to the consequences of not keeping up and consequently being left behind.

Policies and Cultural Norms

Policies are guides for managerial action and decision-making. Organization manuals typically begin with a statement of the organization's quality policy. This statement rates the relative worth that organization members should place on producing high-quality products, as distinguished from the mere quantity of products produced. ("High-quality products" are goods, services, or information that meets important customer needs at the lowest optimum cost with few, if any, defects, delays, or errors.) High-quality products produce customer satisfaction, sales revenue, repeat demand or sales, and low costs of poor quality (unnecessary waste). Here, in that one sentence, are reasons for attempting quality improvement. Including a value statement in your organization's quality manual reinforces some of the instrumental cultural norms and patterns essential for achieving a "quality culture" and, ultimately, performance breakthroughs.

Keep in mind that if the value statement, designed to be a guide for decision-making, is ignored and not enforced, it becomes worthless, except perhaps as a means of deceiving customers and employees in the short term. You can be sure, however, that customers and employees will soon catch on to the truth and dismiss the quality policy, waving it away as a sham that diminishes the whole organization and degrades management credibility.

Human Resources and Cultural Patterns

Human resources plays a significant role in reinforcing cultural norms. It does so by several means that include

- *Recruiting*. Advertisements contain descriptions of desirable traits (e.g., dependable, energetic, self-starter, creative, analytic), as well as characterizations of the organization (e.g., service oriented, customer oriented, committed to being a world leader in quality, progressive, world class, and equal opportunity). Organizational values are often featured in these messages.
- *Orientation and training*. It is customary when providing new employees with an introduction to an organization to review with them expected modes of dress, behavior, attitudes, and traditional styles of working together.
- *Publishing employee handbooks*. The handbooks distributed to new employees, and to everyone annually, are replete with descriptions of organizational history, traditional policies and practices, and expectations for organization members. All of these topics express directly or indirectly detailed elements of the official culture.
- *Reward and recognition practices*. In our rapidly changing world, management teams find themselves agonizing over what kind of employee behavior should be rewarded. Whatever the behavior is, and when it is rewarded, the reward reinforces the cultural norms embodied in that behavior, and it should induce more of the same behavior from the ones who are rewarded, as well as attract others to do the same.
- *Career path and promotion practices*. If you track the record of those promoted in an organization, you are likely to find either (1) behavior that conforms to the traditional cultural norms in their background or (2) behavior that resembles desired new cultural norms required for a given organizational change, such as launching a Six Sigma effort. In the former case, management wants to preserve the current culture; in the latter case, management wants to create breakthroughs in culture and bring about a new culture that is at least somewhat altered. In both cases, the issue of the relationship of the person being promoted to the organizational culture is a significant factor in granting the promotion.

Breakthroughs in Adaptability and Sustainability

Creating a breakthrough in adaptability and sustainability requires

- Creating structures and processes that uncover and predict changes or trends in the environment that are potentially promising or threatening to the organization
- Creating processes that evaluate information from the environment and refer it to the appropriate organizational person or function
- Participation in creating an organizational structure that facilitates rapid adaptive action to exploit the promising trends or avoid the threatening disasters
- A response to the question "How do I prepare my organization to respond quickly and effectively to unexpected change?"

The survival of an organization, like all open systems, depends on its ability to detect and react to threats and opportunities that present themselves from within and from outside. To detect potential threats and opportunities, an organization must not only gather data and information about what is happening but also discover the (often) elusive meaning

and significance the data hold for the organization. Finally, an organization must take appropriate action to minimize the threats and exploit the opportunities gleaned from the data and information.

To do all this will require appropriate organizational structures, some of which may already exist (an intelligence function, using an adaptive cycle, an Information Quality Council) and a data quality system. The Information Quality Council acts, among other things, as a "voice of the market." Dates are defined as "facts" (such as name, address, and age) or "measurements of some physical reality, expressed in numbers and units of measure that enable our organization to make effective decisions by." These measurements are the raw material of information, which is defined as "answers to questions" or the "meaning revealed by the data, when analyzed." The typical contemporary organization appears to the authors to be awash in data but bereft of useful information. Even when an organization possesses multiple databases, much doubt exists regarding the quality of the data and, therefore, the organization's ability to tell the truth about the question it is supposed to answer.

Managers dispute the reliability of reports, especially if the messages contained in the data are unfavorable. Department heads question the accuracy of financial statements and sales figures, especially when they bring bad tidings.

Often, multiple databases will convey incongruent or contradictory answers to the same question. This is because each individual database has been designed to answer questions couched in a unique dialect or based on the unique definitions of terms used by one particular department or function, but not all functions. Data often are stored (hoarded?) in isolated unpublicized pockets, out of sight of the very people in other functions who could benefit from them if they knew they existed. Anyone who relies on data for making strategic or operational decisions is rendered almost helpless if the data are not available or are untrustworthy. How can a physician decide on a treatment if X-rays and test results are not available? How can the sales team plan promotions when it does not know how its products are selling compared to the competition? What if these same sales people knew that the very database that could answer their particular questions already exists but is used for the exclusive benefit of another part of the organization? It is clear that making breakthroughs in adaptability is difficult if one cannot get necessary data and information or if one cannot trust the truthfulness of the information one does get. Some organizations for which up-to-date and trustworthy data are absolutely critical go to great lengths to get useful information. However, in spite of their considerable efforts, many organizations nevertheless remain plagued by chronic data quality problems.

The Route to Adaptability: The Adaptive Cycle and Its Prerequisites

Creating a breakthrough in adaptability creates structures and processes that do the following:

- Detect changes or trends in the internal or external environment that are potentially threatening or promising to the organization.
- Interpret and evaluate the information.
- Refer the distilled information to empowered functions or persons within the organization who take action to ward off threats and exploit opportunities. This is a continuous perpetual cycle.
- Take action to ward off threats and exploit opportunities. This is a continuous, perpetual cycle.

The cycle might more precisely be conceptualized as a *spiral*, as it goes round and round, never stopping (see Figure 9.3). Several prerequisite actions are needed to set the cycle in

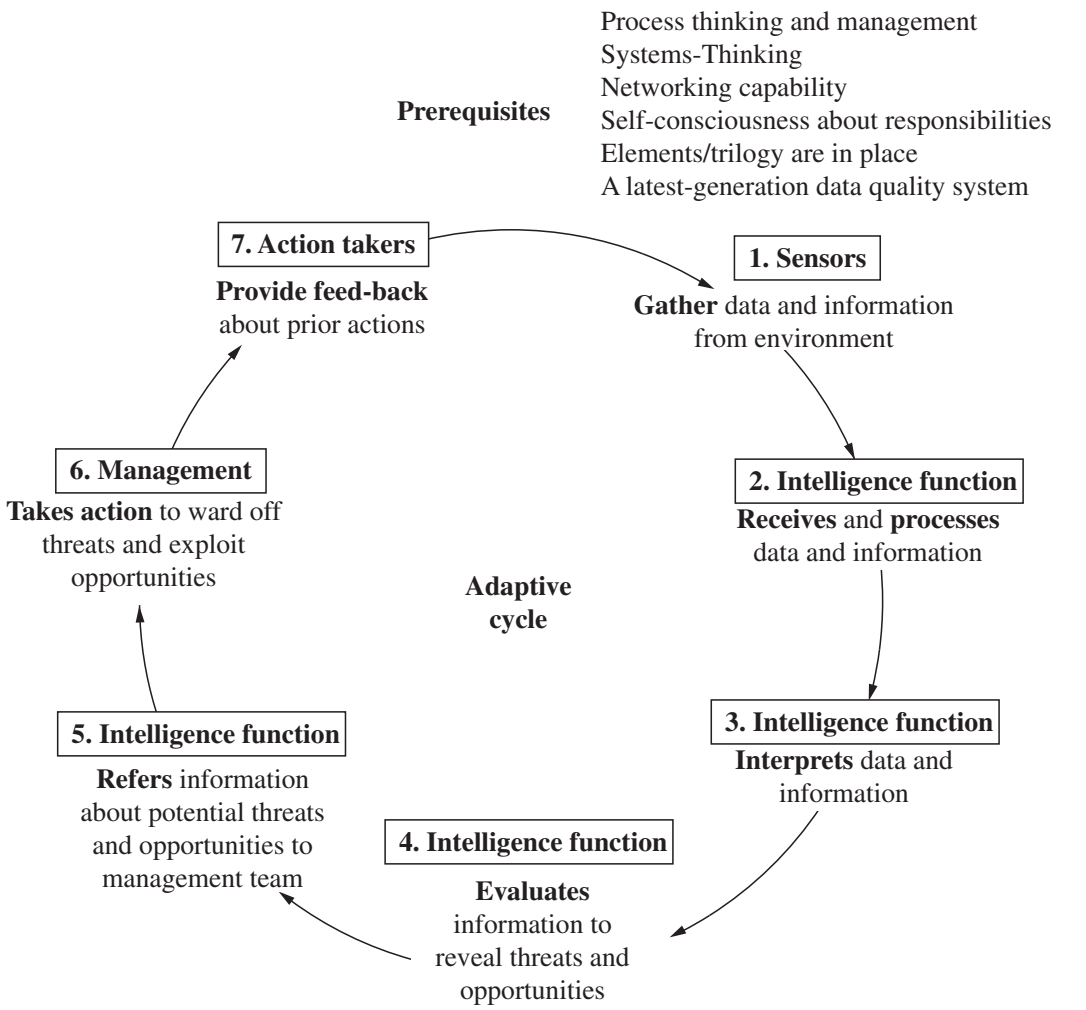

FIGURE 9.3 Adaptive cycle—to detect and to react to organizational threats and opportunities. (*De Feo and Barnard 2004, p. 291.*)

motion and create breakthroughs in adaptability. Although each prerequisite is essential, and all are sufficient, perhaps the most crucial is the Information Quality Council and the data quality system. Everything else flows from timely trustworthy data—data that purport to describe truthfully the aspects of reality that is vital to your organization.

Prerequisites for the Adaptive Cycle: Breakthroughs

- Leadership and management
- Organization structure
- Current performance
- Culture

A Journey around the Adaptive Cycle

An intelligence function gathers data and information from the internal and external environment. At minimum, we need to know some of the following basic things.

From the Internal Environment

- Process capability of our measurement and data systems
- Process capability of our key repetitive processes
- Performance of our key repetitive processes (human resources, sales, design, engineering, procurement, logistics, production, storage, transportation, finance, training, etc.; yields, defect types and levels, and time cycles)
- Causes of our most important performance problems
- Management instrument panel information: score cards (performance toward goals)
- Internal costs and costs of poor quality (COPQ)
- Characteristics of our organizational culture (how much does it support or subvert our goals)
- Employee needs
- Employee loyalty

From the External Environment

- Customer needs, now and in the future (what our customers or clients and potential customers or clients want from us or our products)
- Ideal designs of our products (goods, services, and information)
- Customer satisfaction levels
- Customer loyalty levels
- Scientific, technological, social, and governmental trends that can affect us
- Market research and benchmarking findings (us compared to our competition; us compared to best practices)
- Field intelligence findings (how well our products or services perform in use)

You may add to this list other information of vital interest to your particular organization. This list may seem long. It may seem expensive to get all this information. (It can be.) You may be tempted to wave it away as excessive or unnecessary. Nevertheless, if your organization is to survive, there appears to be no alternative but to gather this kind of information, and on a regular, periodic basis. Fortunately, as part of routine control and tracking procedures already in place, your organization probably gathers much of this data and information. Gathering the rest of the information is relatively easy to justify, given the consequences of being unaware of, or deaf or blind to, vital information.

Information about internal affairs is gathered from routine production and quality reports, sales figures, accounts receivable and payable reports, monthly financial reports, shipment figures, inventories, and other standard control and tracking practices. In addition, specially designed surveys—written and interviews—can be used to gain insights into such matters as the state of employee attitudes and needs. A number of these survey instruments are available off the shelf in the marketplace. Formal studies to determine the capability of your measurement systems and your repetitive processes are routinely conducted if you are using Six Sigma in your organization. Even if you do not use Six Sigma, such studies are an integral part of any contemporary quality system. Score cards are very widely utilized in organizations that carry out annual strategic planning and deployment. The scores provide management with a dashboard, or instrument panel, which indicates warnings of trouble in specific organizational areas. Final reports of operational projects from quality improvement

teams, Six Sigma project teams, and other projects undertaken as part of executing the annual strategic business plan, are excellent sources of "lessons learned" and ideas for future projects. The tools and techniques for conducting COPQ studies on a continuing basis are widely available. The results of COPQ studies become powerful drivers of new breakthrough projects because they identify specific areas in need of improvement. In sum, materials and tools for gathering information about your organization's internal functioning are widely available and easy to use.

Gathering information about conditions in the external environment is somewhat more complex. Some approaches require considerable know-how and great care. Determining customer needs is an example of an activity that sounds simple but actually requires some know-how to accomplish properly. First, it is proactive. Potential and actual customers are personally approached and asked to describe their needs in terms of benefits they want from a product, services, or information. Many interviewees will describe their needs in terms of a problem to be solved or a product feature. Responses like these must be translated to describe the benefits the interviewee wants, not the problem to be solved or the product feature they would like. Tools and techniques for determining ideal designs of current and future products or services are also available. They require considerable training to acquire the skills, but the payoffs are enormous. The list of such approaches includes Quality Planning, Design for Six Sigma (DFSS), TRIZ, a technique developed in Russia for projecting future customer needs and product features. Surveys are typically used to get a feel for customer satisfaction. A "feel" may be as close as you can get to knowledge of customer feelings and perceptions. These glimpses can be useful if they reveal distinct patterns of perceptions whereby large proportions of a sample population respond very favorably or very unfavorably to a given issue. Even so, survey results can hardly be considered "data," although they have their uses if suitable cautions are kept in mind. The limitations of survey research methodology cloud the clarity of results from surveys. (What really is the precise difference between a rating of "2" and a rating of "3"? A respondent could answer the same question different ways at 8:00 A.M. and at 3:00 P.M, for example.) (A satisfaction score increase from one month to another could be meaningless if the group of individuals polled in the second month is not the exact same group that was polled the first month. Even if they were the same individuals, the first objection raised above would still apply to confound the results.)

A more useful approach for gauging customer "satisfaction," or more precisely, their detailed responses to the products or services they get from you, is the customer loyalty study, which is conducted in person with trained interviewers every six months or so on the same people. The results of this study go way beyond the results from a survey. Results are quantified and visualized. Customers and former customers are asked carefully crafted standard questions about your organization's products and performance. Interviewers probe the responses with follow-up questions and clarifying questions. From the responses, a number of revealing pieces of information are obtained and published graphically. Not only do you learn the features of your products or services that cause the respondents happiness and unhappiness but also such things as how much improvement of defect X (late deliveries, for example) it would take for former customers to resume doing business with you. Another example:

You can graphically depict the amount of sales (volume and revenue) that would result from given amounts of specific types of improvements. You can also learn what specific "bad" things you'd better improve, and the financial consequences of doing so or not doing so. Results from customer loyalty studies are powerful drivers of strategic and tactical planning, and breakthrough improvement activity.

Discovering scientific, technological, social, and governmental trends that could affect your organization simply requires plowing through numerous trade publications, journals, news media, websites, and the like, and networking as much as possible. Regular searches

can be subcontracted so you receive, say, published weekly summaries of information concerning very specific types of issues of vital concern to you. Although there are numerous choices of sources of information concerning trends, there appears to be little choice of whether to acquire such information. The trick is to sort out the useful from the useless information.

A basic product of any intelligence function is to discover how the sales and performance of our organizations' products, services, and sales compare with our competitors and potential competitors. Market research and field intelligence techniques are standard features in most commercial businesses, and books on those topics proliferate.

Many organizations undertake benchmarking studies to gather information on world-class best practices. They study the inner workings of repetitive processes such as design, warehousing, operating oil wells, and mail order sales—almost anything. The processes studied are not necessarily those of your competitors; they need only be the very best (efficient, effective, and most economical). Benchmarking studies are classic intelligence detective work, and are often conducted on a subcontract basis with organizations that specialize in benchmarking. The results are typically published and shared with all participants. When you have discovered best practices, you can compare your performance with them and describe gaps between theirs and yours, thus identifying breakthrough opportunities.

Completing the adaptive cycle, will enable the organization to attain a breakthrough in adaptability and lead to sustainability. Skipping a breakthrough may not indicate a problem in the short term, only in the long term. Consider the economic crisis that hit the global economy in 2008. There were many global organizations that we considered leaders in their markets—when business was good. During the crisis, so many top performers of the past went out of business, were merged with others, or went into bankruptcy only to emerge a different organization. Why did so many organizations have trouble? Our theory was that although these organizations were good at responding to their customer needs they were not watching societies needs. This led to a lack of information that, if it was available, would have provided enough time to "batten down the hatches," to ride the crisis out. To avoid this from happening, creating a high performing, adaptable organization may lead to better performance when things are not so good.

Sustainability

The second part of this breakthrough is sustainability. Sustainability has two important meanings. The first is to sustain the benefits of the transformational changes that took place. The second is to assure the organization is sustainable from an environmental point of view. At the time of publication, we felt we would only focus on long-term results. As more organizations take on the environmental issues that will plague us in the future, sustainability will focus on both. Chapter 10 elaborates on ecoquality.

Sustainability is the return to evaluate performance annually based on the findings of the Information Council. With this information, leaders can adjust the organization to ensure that it stays ahead of its customers and can sustain itself for the long term.

A Transformation Roadmap

The Juran Transformation Roadmap

There are five phases in the Juran Transformation Roadmap, each one corresponding to the breakthroughs that are described in this chapter. Each phase is independent, but the beginning and end of each phase are not clearly delineated. Each organization reacts differently to changes.

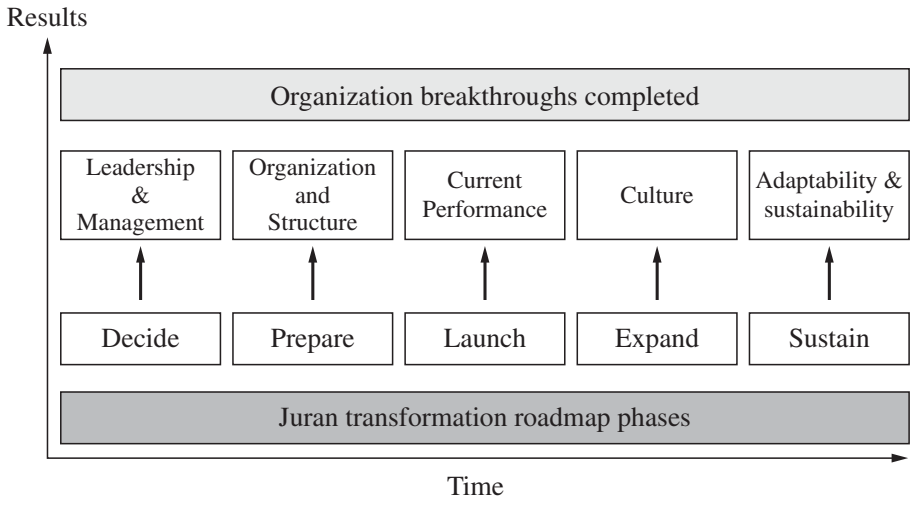

Figure 9.4 Juran roadmap and breakthroughs.

This means that one business unit in an organization may remain in one phase longer than another unit. These phases once again are a managerial guide to change, not a prescription.

The five phases of the Transformation Model and Roadmap are shown in the Figure 9.4. The road starts at the Decide Phase. This phase begins when someone on the executive team decides that something must be done or else the organization will not meet shareholder expectations or will not meet its plan and ends with a clear plan for change.

In the Decide Phase, the organization will need to create new information or better information than it may have had about itself. This information can come from a number of reviews or assessments. Our experience shows that the more *new* information an organization has, the better its planning for change. Some of the important areas that should be reviewed are as follows:

- Conduct a Customer Loyalty Assessment to determine what they like or dislike about your products and services.
- Identify the areas of strength and uncover possible problems in the organization's performance.
- Understand employee attitudes toward the proposed changes.
- Understand the key business processes and how the changes will affect them.
- Conduct a cost analysis of poorly performing processes to determine the financial impact of these costs on the bottom line.
- Conduct a world-class quality review of all business units to understand the level of improvement needed in each unit.

A comprehensive review of the organization prior to launch is essential for success. We show a typical review that we recommend to all organizations embarking upon a Six Sigma transformational initiative. From these assessments and reviews, the executive team now has qualitative and quantitative information to define the implementation plan for its organization.

The deployment plan must include the following items:

- Infrastructure that is needed to steer the changes
- Methodology and tools that will be used throughout the implementation

- Goals and objectives of the effort
- Detailed milestones for achieving results

The conclusion of this phase results in the breakthrough in leadership and management

The second phase is the Prepare Phase. In this phase, the executive team begins to prepare for the changes that will take place. It focuses on developing a pilot effort to try the change in a few business units before carrying it out in the organization as a whole.

This phase begins by deploying the plan created in phase one and it ends after a successful launch of pilot projects in phase three. From here, the organization begins to identify the improvement projects that must be carried out to meet the desired goals established in the Decide Phase. In this phase, the organization launches the pilot projects, reviews the projects' progress, and enables the projects' success. Upon completion of the pilot projects, executives evaluate what has worked and what has not. Then executives either abandon their efforts or change the plan and expand it throughout the organization.

The following actions can be taken for your organization:

- Identify the areas of strength and uncover possible problems in the organization's performance from phase one.
- Identify value streams and key business processes that need improvement.
- Select multifunctional pilot or demonstration projects and create project charters.
- Create a training plan and set of learning events to train the teams.
- Communicate the steps taken in this phase to the workforce.

The conclusion of this phase results in a breakthrough in organizational structure.

The third phase is the Launch Phase. In this phase, the executive team begins demonstration projects in a few business units before carrying them out in the total organization. Each project will require a project charter, a team and an effective launch, reviewing the progress and maintaining the gains before results are attained. The length of this phase depends on the number of projects and results expected. For most organizations, this phase completion takes less than one year. As each project is completed, and results are attained, leaders can then evaluate the lessons learned and expand by launching more projects.

The conclusion of this phase results in a breakthrough in current performance

Expansion can take months or years, depending on the size of the organization. An organization of 500 employees will require less time to deploy a plan across the organization than an organization of 50,000. The Expand Phase may take three to five years. Note that positive financial results will occur long before cultural changes take place. Staying in the Expand Phase is not a bad thing. An organization must continue to implement its plan, business unit by business unit, until the organization has had enough time to implement the desired changes. The Final Phase is the Sustain Phase when the organization has a fully integrated operation. All improvement and Six Sigma goals are aligned with the strategy of

the organization. Key business processes are defined and well managed, and process owners are assigned to manage them. Employee performance reviews and compensation are in line with the changes required. Those who comply with the change are rewarded. The executives and business unit heads conduct regular reviews and audits of the change process. This may result in a discussion or even a change in the strategy of the organization.

The organization may have learned more about its capabilities and more about its customers that may lead to a change in strategy.

The conclusion of this phase results in a breakthrough in culture.

The Sustain Phase also lasts as long as the organization is meeting its strategic and financial goals. Deviations from expected results, possibly due to macroeconomic events outside the organization, require a review of the scorecard to determine what has changed. When this is determined, the organization makes the changes, continues, and sustains itself at the current level.

The conclusion of this phase results in a breakthrough in adaptability and sustainability.

Lessons Learned in Deploying the Transformation Road Map

As you begin your journey down this road, note the many lessons learned from organizations that have led a change process and failed initially. These failures can be avoided by suitable planning, listed as follows:

- All organizations and their units are at different levels of maturity regarding performance.
- Champions and internal experts (such as Six Sigma Black Belts) become drivers who propel their organization to superior performers or best in class.
- Extensive training in tools and techniques for all employees ensures that learning has taken place and that they can use the tools to improve performance.
- Systematic application and deployment through proven methodologies such as Six Sigma Improvement (DMAIC) and Design (DFSS) are necessary to create a common language and create results in current performance.
- Focusing improvements on the customer first will enable cost reduction, and delighted customers will enable breakthrough bottom-line results.
- Significant increase in customer satisfaction happens only when you improve the processes and services that impact them.
- No organization has ever successfully implemented a plan without the leadership and commitment of the executive team—they are the ones who control the resources and provide the communication that will change the culture.

With this road map and the lessons learned, all organizations should be able to achieve sustainable results well into the future. If more organizations get on board with positive, customer-focused change initiatives, we will be able to create a global society that reduces our dependence on the quality dikes we have built over the years.

As your organization continues to renew itself annually through the strategic planning process, this cycle of improvement should continue. Barring any leadership changes or crisis, your organization should be on its way to attaining superior and sustainable results.

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