SECTION 26
ADMINISTRATIVE AND SUPPORT OPERATIONS

James A. F. Stoner
Charles B. Wankel
Frank M. Werner

INTRODUCTION

Exceeding customer expectations involves numerous activities throughout the organization. In the early years of the quality "movement," attention was devoted predominantly to those activities which most directly influenced the nature of the product or service (e.g., design, purchase of materials, fabrication, inspection). However, there are many activities that, though indirectly influencing quality of product or service, have a major impact on customer satisfaction. As dramatic improvements in product and service quality have become more widespread, increasing attention has been devoted to improving the quality of these less directly visible contributors to customer satisfaction or dissatisfaction.

A broadly accepted generic term for these activities has not yet emerged in the literature or in organizational practice. In this handbook, the term *administrative and support operations* will be used to designate these activities. Responsibility for these activities is normally located in "staff" or administrative functions, such as Finance, Human Resources, or Corporate Law. Examples include the Human Resources Department's handling of the payroll so that employees get paid and the Legal Department's support to researchers in the Research and Development (R&D) Department in preparing and filing patent applications. These operations are defined more extensively later in this section, but we will not emphasize the distinctions between *administrative activities* and *support activities* because, by their nature, the role of all administrative and support activities is to support the rest of the organization in creating and delivering products and services that exceed customers' expectations.

Summary and Conclusions. In organizing to achieve and sustain revolutionary rates of improvement in quality and customer satisfaction, companies find that organizational structures, systems, relationships, and all parts of the organizational culture change greatly (see also Sections 5 and 15). These changes are no less profound in administrative and support departments—such as Finance, Human Resources, and Legal Services—than they are anywhere else in the organization. This section of the handbook looks at how administrative and support operations within organizations can be and are being improved as part of the global quality revolution and how the functional departments that are the traditional homes of these operations are changing.

Introducing quality into administrative and support operations produces three broad types of change. Some change relates to the processes of administrative and support work, some to the content of that work, and some to the context within which that work is performed.

Process: Well-established ("traditional") administrative and support operations are examined using the tools of quality management and are often significantly improved.

Content: The work of administrative and support functions changes as new operations are undertaken and old operations are eliminated or transferred to other organizational units.

Context: The roles of administrative and support personnel and their relationships to the rest of the organization change—and new roles and relationships emerge—as administrative and support areas become more concerned about serving both external and internal customers, as the nature of their work changes, and as they increase their rate of learning from the rest of the organization.

The major conclusions of this section are

Administrative and support functions can and do use essentially the same quality improvement tools in essentially the same ways with essentially the same results as other parts of the organization.

Increases in customer satisfaction arise from improvements in traditional services—with the improvements showing up as defect reduction, cycle-time reduction, and cost reduction—and the development of new services.

Beneficiaries of these quality improvements include both internal and external customers.

Role and relationship changes that departments and their members undergo are particularly important.

In general, the functional departments that provide these administrative and support operations follow rather than lead the production and operations functions, sometimes with a considerable lag.

The kinds of changes in functional departments described in this section are likely to continue to evolve in new ways as organizations invent and discover new structures and relationships more consistent with a total quality culture (see also Section 15, Human Resources and Quality).

These conclusions suggest that all organizational members should expect and should plan for revolutionary rates of quality improvement in all administrative and support operations, just as they can and should expect and plan for such improvements in the products and services they provide to their external customers.

Defining and Identifying Administrative and Support Processes. The processes that make up the administrative and support operations of an organization can be looked at as occurring in three related areas: administering the internal activities of the organization, supporting members of the organization in serving external customers, and supporting external customers—defined broadly to include suppliers and other outside stakeholders—in doing their business with the organization.

The administrative side of these activities encompasses operations required for the organization to sustain itself as an ongoing entity so that it can serve its customers. Administrative activities involve processes that affect primarily or exclusively internal customers. They may affect internal customers in their roles as employees of the organization or in their roles as producers serving external customers. An example of an administrative activity with an impact on employees as internal customers is human resources' handling of the payroll so that employees get paid. Other examples include managing pension funds and retirement programs, career systems, compensation programs, training systems, health care programs, and so on.

Administrative processes that affect employees in their roles as producers involve developing, maintaining, and using systems and activities—such as management information systems and plant maintenance—that enable the organization's members to do work that serves the ultimate customer. An example is the contribution facilities management groups make in maintaining clean and comfortable working conditions.

The support side of these activities encompasses operations that contribute more directly to the work of other departments as they serve the organization's external customers or do other necessary activities to ensure competitive health. An example would be the Legal Department's support to researchers in the R&D Department in preparing and filing patent applications. Support activities also assist customers and other stakeholders in dealing with the organization; examples include invoicing and processing payments from external customers.

Some activities that we have treated as administrative and support operations may not fit easily into this category because their connection with external customers—or at least stakeholders—is quite strong and direct. For example, investor relations functions, frequently located within the corporate finance staff, prepare annual reports and deal with securities analysts. We have treated these activities as support activities because they assist external customers in dealing with the organization.

The Need for Improvement. In the preceding edition of this handbook, Gryna (1988) suggested that significant improvement opportunities exist for the reduction of error rates and cycle time in the execution of useful and effective administrative and support systems. He reported a study in an electronics firm that showed that "50 percent of time cards were in error," "40 percent of all travel reservations made in one month were changed" and two were changed nine times, and 10 percent of performance appraisals sampled in "one month were returned because of lack of signatures." He noted that "little work has been done to quantify the extent and cost of errors in support operations or administrative operations. It is the author's belief that the cost of poor quality for these activities is as great as the cost of poor quality associated with the product."

As Gryna suggests, the costs of defects and of slow cycle time in useful and valuable administrative systems may be quite large. However, these costs may be lower than the costs arising from ineffective and unnecessary administrative processes. One of the costs of poor quality that has not been quantified is the interference in the organization's work that arises from the existence of outdated, unnecessary, and ineffective administrative and support operations. Administrative and support procedures that do not add value can easily arise and then become encrusted parts of organizational systems and programs. Ineffective or useless systems waste not only the resources of the administrative and support personnel who administer and execute them but also the time and energy of those who collect the data demanded, fill out the required forms, wait for the required approvals, and so on.

Beyond opportunities to reduce the costs of poor quality, there is a need to improve administrative and support operations to make them consistent with the organization's emerging quality management systems and culture. Administrative and support processes inconsistent with the rest of the organization can generate significant drag on many activities; processes aligned with other organizational units and processes can enable superior performance.

Relation to Other Sections of This Handbook. Because administrative and support operations employ the same types of quality tools and implementation processes used in other parts of the organization, Sections 3, 4, 5, 6, 12, 13, 14, and 45, on Quality Planning, Quality Control, Quality Improvement, Process Quality Management, Benchmarking, Strategic Quality Planning, Total Quality Management, and Statistical Process Control, are particularly relevant to this section. Because the changes in the work, roles, and relationships of administrative and support members can be quite large and are part of broad cultural changes in organizations, Sections 15 and 16, Human Resources and quality and Training for Quality, are also quite relevant to this section.

PROGRESS IN ACHIEVING QUALITY IMPROVEMENTS IN ADMINISTRATIVE AND SUPPORT SERVICES

Overview. Although progress in improving administrative and support operations historically has been slower than in many production operations, progress can be dramatic once the changes are started. Recent evidence suggests that organizations can expect rates of quality improvement in administrative and support operations comparable with what they achieve in production. Errors in issuing paychecks can be reduced from hundreds a month to one or two, cycle time to complete credit analyses or to draft contracts can be reduced from weeks to minutes, and the cost of closing the corporate books of large multinational companies can be reduced by tens of millions of dollars per year—with fewer errors and greatly reduced cycle time. This part of this section begins with a historical perspective on improvements in administrative and support operations. It then discusses reasons why quality progress in administrative and support functions has tended to be slower than in areas more directly in touch with the final customer and how these historical reasons are changing, yielding the current situation in which rates of improvement in administrative and support services can be similar to those in other activities.

Historical Perspective. The manufacturing or service company's mission is to produce a continuing flow of products and services that exceed customer expectations, to market and support these products and services effectively and efficiently, and thereby to generate income that sustains the organization and rewards its various stakeholders.

An early awareness of the effect of product and service quality on income led companies to establish quality control departments within their traditional operations. These activities focused initially on final inspection of completed products and then quality assurance during production. These quality control operations developed most rapidly and extensively in manufacturing companies. Moreover, within manufacturing companies, they were most highly developed on those aspects of product progression which are most obvious to users and producers, such as materials, manufacturing operations, and final performance features. The effect of administrative and support operations on product quality and customer satisfaction was less obvious, and this less obvious connection may have contributed to the slower development of quality controls in these "indirect" activities.

Sullivan (1986) has described the development of companywide quality control as a seven-stage process. In his model, administrative and support functions are likely to become actively involved in the third stage, but not before. The first stage is "product-focused," involving "inspection after production, audits of finished products, and problem-solving activities." The second stage is "process-oriented," involving "quality assurance during production including SPC and foolproofing." In the third stage, attention shifts to the rest of the organization. In this stage, which he refers to as "systems-oriented," all departments are involved. Although he cites only design, manufacturing, sales, and service, an increasing systems orientation would logically include administrative and support operations.

Sullivan's remaining four stages are (4) "humanistic," changing "the thinking of all employees through education and training," (5) "society-oriented," "product and process design optimization for more robust function at lower costs," (6) "cost-oriented," which involves integrating Taguchi's societal loss function concept into the design process and into the total management system to produce

products and services that are fully competitive on a total cost-to-society basis, and (7) "consumer-oriented," involving "quality function deployment to define the `voice of the customer' in operational terms." [All quotations are from Sullivan (1986).]

The ways quality management has evolved in companies in the late 1980s and 1990s may be considerably different from the process Sullivan described in his 1986 article, but his framework does suggest many of the changes occurring in administrative and support functions. Sullivan's framework seems particularly accurate in describing a follower rather than a leader role for administrative and support operations in adopting quality approaches. A number of historical barriers to quality improvement in administrative and support operations have contributed to this follower role.

Historical Barriers to Quality Progress. Perhaps the most important factor contributing to this follower orientation has been the historically noncompetitive nature of support and administrative operations in most companies. Administrative and support activities primarily served captive internal customers who often were without access to other suppliers. These internal suppliers were not exposed to a clear competitive wakeup call like the ones that occurred in many industries as their products competed unsuccessfully against the dramatically improved quality of foreign competitors, most notably the Japanese. Administrative and support activities were shielded from the competitive forces that drove the quality revolution in its spread across companies, industries, sectors, and nations.

Other factors that contributed to this follower role include a lack of information about the quality dimensions of administrative and support processes, a lack of alertness to the profit impacts of administrative and support operations, a lack of success stories about improving these processes, a lack of experienced leaders for making the improvements, and a lack of process awareness.

The connection between ineffective administrative and support activities and company competitiveness and profitability has been much less clear than the connections between product quality and cost and organizational profitability and competitiveness. The early success stories that energized quality improvements in many companies occurred overwhelmingly on the plant floors of close competitors and led to attempts to achieve similar gains. The experienced quality experts who spread quality approaches from one company to another usually were production experts; rarely were they experienced in improving administrative and support processes. In fact, a widely held belief was that companies could not "do quality" in finance, in marketing, or in legal activities. Many administrators also have been slow to recognize that administrative and support operations accomplish their missions through productive processes, just as do all other parts of an organization. With its strong emphasis on improving processes, the quality approach seemed less relevant to people who did not recognize that they were, in fact, involved in processes.

This lack of awareness of processes in administrative and support functions is particularly interesting and may have existed for a variety of reasons, including

- Lower levels of training in subjects that relate to systems and processes, such as engineering and other science-based disciplines
- Processes that are not highly visible because they are episodic and infrequently repeated (e.g., drafting legal contracts, analyzing major investment projects, dealing with turnover of team members on a project team)
- The belief that administrative and support activities are not processes at all but are "an art rather than a science," depending primarily on creative or professional skills (e.g., preparing an advertising campaign, preparing a patent application, managing an investment portfolio)
- The existence of traditional functional silos that interrupt the natural flow of processes and obscure their interconnections across functional activities, supported by the belief that functional silos are desirable or inevitable (e.g., assuming that it is appropriate for all market research activities to be concentrated in a department of expert market researchers)

Falling Barriers and Rising Expectations and Pressures. Many of these barriers to quality improvement are falling rapidly while expectations and pressures for quality improvements

are rising. Successes in using quality management approaches to make improvements and to change to more effective roles have shown that progress is possible and profitable. Training and consulting resources for improvement inside and outside the organization have increased greatly. Many individuals in administrative and support activities now recognize the existence of processes and the importance of serving their internal and external customers.

In addition, two related changes in the 1980s and 1990s—increased competitive pressures on companies and the rise of outsourcing—may be reducing the "follower gap" in administrative and support operations and contributing to the much more aggressive adoption of quality approaches that has been occurring recently. As companies have faced progressively more competitive situations, the pressure to "do more with less" has fallen heavily on administrative and support operations. At the same time, increased attention to the potential value of outsourcing has reduced the protected nature of these operations. Members of administrative and support functions increasingly face the choice of making dramatic improvements in quality, cycle time, and cost-effectiveness or allowing their operations to be supplied by contracts with outside organizations that can provide their services at lower cost and higher quality [see, for example, Alexander and Young (1996), Harkins et al. (1996), and Lacity et al., (1996)]. Because of these changes, quality improvements in administrative and support operations are increasing at a rapid pace.

CHANGES FROM QUALITY IMPROVEMENTS IN ADMINISTRATIVE AND SUPPORT SERVICES

Overview. To a large extent, the types of quality improvements achieved in administrative and support operations are the same as those achieved in other parts of the organization. However, there is one type of improvement that is moderately "special" to administrative and support operations in the sense that it is more likely to occur in those operations than in other organizational operations. In this part of this section we discuss the first three broad categories of changes and illustrate them with examples drawn from the various administrative and support operations. We then discuss the more unusual improvement area. We also identify the opportunity for quality champions elsewhere in the organization to contribute to quality in administrative and support areas.

Three Types of Quality-Based Improvements. Quality-based improvements in administrative and support operations may be grouped into three broad and well-recognized categories: (1) improvements arising from examining traditional activities and doing them better, (2) improvements arising from doing different things, and (3) improvements arising from changes in roles and relationships. (See also Section 15, Human Resources and Quality.)

Figure 26.1 is a model of these three types of improvements. The organization's administrative and support operations are shown in transition, from operating within a system of traditional management (TM), represented by the steep pyramid, to functioning within systematic quality management (SQM), shown as a flattened and inverted "plate." The plate, flattened to represent the elimination of unnecessary organizational layers and inverted to symbolize the changing role of managers from commanding to supporting the rest of the organization, represents the current state of the art of quality management—the best practice of companies such as the Deming and Baldrige Prize winners of the late 1990s.

The figure also shows a dotted arrow continuing upward to the right and leading toward an amorphous object. This part of the diagram suggests the continually evolving nature of the quality management paradigm toward a state of management practice not yet reached by any existing organization. The path of that dotted arrow might be the evolution of organizations from total quality to learning to world class discussed by Hodgetts et al. (1994).

In the diagram, two arrows indicate improvements from examining traditional work through the quality management lens; some work (arrow 1a) is left unchanged, whereas other work (arrow 1b) is redesigned. The other two arrows represent improvements from doing different things,

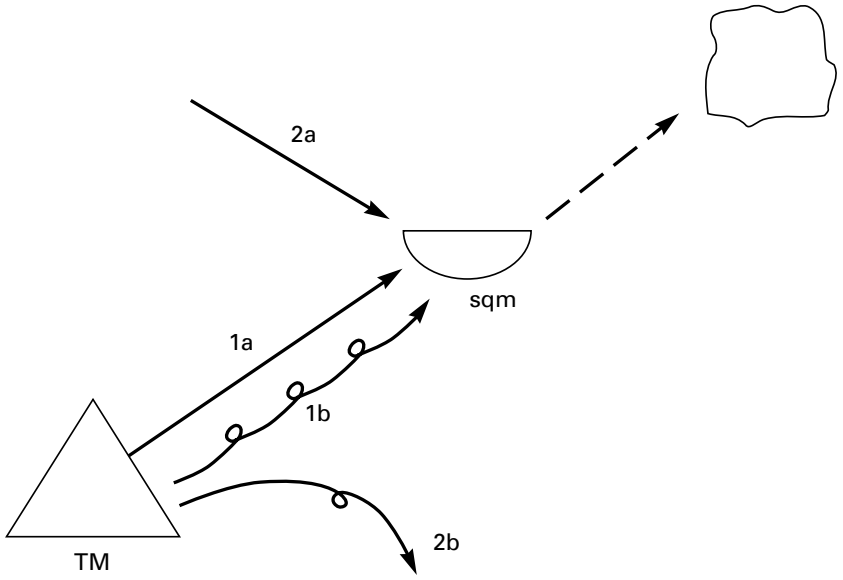

FIGURE 26.1 Types of quality-based improvements.

either by undertaking new value-adding operations (arrow 2a) or by eliminating non-value-adding activities or transferring work better performed elsewhere to other organizational units (arrow 2b). Surrounding the diagram is the rest of the organization, symbolizing the third type of improvement, changes in the roles and relationships of administrative and support personnel (Stoner and Werner 1992*b*).

Improvements from Doing the Same Things Better. The first type of change begins with the study of what the organizational unit is presently doing to locate opportunities for improvement. While some activities in the unit already may be consistent with best practice and systematic quality management, more often there are numerous opportunities to improve quality and customer service and to reduce costs. This is done both through small-scale continuous improvements [what Imai (1986) calls *kaizen*] and through large-scale, discontinuous improvements (what Imai calls *innovation* or others have called *re-engineering.*

Kaizen involves continuously improving existing operations in incremental steps. For example, many organizations have used quality improvement teams to improve their handling of reimbursement for travel expenses. Federal Express redesigned its expense reporting system by replacing manual forms with a computer screen that eliminates missing data and mathematical errors. As a result, it now reimburses employees within 1 day and in the process has eliminated the need for most cash advances (Stoner and Werner 1993, p. 44). Of course, over time, a series of small changes may aggregate into very large changes.

Imai's innovation involves dramatic, discontinuous, large-scale changes in what the function does or how it does it. As Section 6 discusses, innovation—or re-engineering—is the redesign of existing processes to accomplish the same (or different) tasks in significantly different ways. When IBM Credit Corporation studied its credit approval process to understand why it took a full week to process a customer request, it found that much of the week was wasted while the documents waited for the next specialist's time. IBM Credit threw out the existing process and designed a completely new system built around a single customer representative responsible for each part of the process. Now, with one person handling the documents, the loan request is processed within a few hours (Hammer and Champy 1993, pp. 36–39).

Improvements from Doing Different Things. The second type of improvement involves doing different things: adopting new activities and eliminating those which are found to add little or no value. When these changes are quite large in scope and impact, they also may be called *re-engineering.* These changes increase the effectiveness of the organization by reducing the inefficiencies, frustrations,

and waste of time and effort that occur when administrative and support groups undertake work better done elsewhere in the organization (or not at all!) or do not perform operations that they are best suited for. For example, one major form of inefficiency occurs when administrative and support groups perform inspections, sign-offs, and policing functions that create delays and costs without adding commensurate value.

As administrative and support personnel begin to question the value added by their activities, they often discover new products and services they can provide to other parts of the organization (or perhaps to external customers). American Standard Companies discovered an opportunity to improve its internal business processes by modeling them after the quality processes that had been adopted successfully in their manufacturing activities. The company created a transformation team that conducts 5-day workshops at its administrative offices around the world to teach and install these new methods.

In administrative and support functions, one of the largest changes involves stopping activities that have outlived their usefulness. For example, early in their quality improvement initiatives, many finance functions find that they are producing periodic reports—often at considerable expense—that simply are not used elsewhere in the organization. Suspecting this to be true, the CFO of Stanley Tools once stopped sending out all financial reports; his suspicions were confirmed when few recipients complained. Stanley eliminated many of the reports and redesigned the others to provide recipients with the data they truly needed (seminar presentation at Fordham University, October 9, 1990).

Improvements from Changing Roles and Relationships. The third type of improvement involves changes in the roles of administrative and support personnel and in their relationships with others in the organization, transformations that alter the ways individuals and groups work together. These changes come about as administrative personnel begin to see the organizational units they support as internal customers and increase their rate of learning (or begin to learn) from the rest of the organization.

Keating and Jablonsky (1990) and Stoner and Werner (1993, 1995) have reported large changes in the ways corporate finance members work with other organizational members in some companies. Finance members have abandoned the role of corporate police, no longer seeing themselves as "the only adults in the company." Instead, they act like "business partners" who work collaboratively with other organizational members. Keating and Jablonsky make this point using the analogy of a successful sports team. It is the players on the field who win the games, but a winning team also requires effective coaches and a strong franchise to provide supporting resources. They observe that

> …the unique challenge facing the financial professional…is learning how to become a player and a coach. This is not an insignificant task when individuals have been trained in school and [have] continued professionally to be scorekeepers or independent commentators. Getting close to the business means getting on the field as part of the management team [Keating and Jablonsky 1990, p. 15].

A Bonus from Eliminating Non-Value-Adding Administrative Work. There is a special aspect of administrative and support operations that has enabled quality initiatives to make unusual—and often major—contributions to the competitiveness of organizations, to their ability to improve customer satisfaction, and to their ability to provide an enjoyable working environment (what W. Edwards Deming called "joy in work"). This unusual type of improvement arises from the elimination of non-value-adding work by administrative and support functions. It is similar to the results achieved when any part of an organization eliminates an unimportant or useless activity, but frequently it is also a bit different.

When the parts of an organization that serve customers directly—the front line—eliminate non-value-adding work, the major beneficiary is usually the unit itself that eliminates the non-value-adding work, although the external customer also may benefit. When administrative and support operations eliminate non-value-adding work, the major beneficiaries are usually others: the customers of the administrative support functions and the entire organization.

This difference in likely beneficiaries arises because administrative and support operations frequently require work to be performed by other parts of the organization to meet government regulations, to conform to procedures and policies, to provide data intended to be useful to others inside and outside the

organization, and so on. Administrative and support functions do not simply serve internal customers; they also impose on other organizational units demands that can get in the way of doing business: reports that require data to be provided by other units, internal audit inspections and requirements for changes that can be onerous or not worth the effort to make, delays in hiring that prevent work from being done, lengthy legal documentation and other steps to prevent or defend law suits, and so on. When ineffectively designed and implemented, these administrative requirements create very real burdens for the rest of the organization and are of questionable value in improving customer service.

Ford discovered the magnitude of the costs imposed by non-value-adding administrative work when it conducted its now well-known study of Mazda in the early 1980s to learn how Mazda could produce higher-quality cars at significantly lower cost. One key conclusion was that "…Mazda's efficiency gains resulted from dispersing many so-called accounting activities to nonfinance functions.…Quoting from the study: 'This environment helps eliminate duplication of effort. Mazda activities handle a broad range of responsibilities related to their operation, and it is not necessary for detailed information to be passed to accounting for processing, data entry and reporting'" (Keating and Jablonsky 1990, p. 79).

Administratively imposed burdens often have a second, perhaps even more perverse effect: They can deprive people of the ability and motivation to improve the organization. One Ford employee related, "People got to the point where they said…it's not my role to control costs, it's what those finance people are for" (Keating and Jablonsky 1990, p. 87). AT&T's Chief Accountant Bernie Ragland, referring to the company's regulated history and associated internal conformance procedures, "argued that the single most negative cost associated with regulation is not the specific dollar outlay required to maintain the complex fiscal accountability system; the most negative cost is the 'conformance mentality that regulation breeds.' " This effect "is particularly insidious because it is pervasive, and over time, becomes an habitual pattern of behavior that, even when recognized, is not easily broken…you cause people not to think about doing things'" (Keating and Jablonsky 1990, p. 168).

Administratively imposed requirements, such as unnecessary reports to staff organizations, are particularly vexing to other organizational members because the administrative departments are nonpaying customers that cannot be avoided. External customers frequently can protect themselves from being forced to do non-value-adding work by taking their business elsewhere, but internal customers rarely have that opportunity. One of the major contributions of the quality approach has been the removal of many non-value-adding requirements from administrative and support functions. Although the savings in time and money within administrative and support budgets may be quite significant, the savings in the other organizational units that are freed of the administrative burdens are frequently much greater. In this sense, this type of change deserves special attention when assessing the value of quality-based improvements in administrative and support operations.

Assisting Administrative and Support Areas. Administrative and support operations offer particularly fertile ground for contributions by the traditional quality champions from production and quality departments. Quality tools and approaches that have become part of the cultures of an organization's production and operations areas can be deployed in administrative and support areas with results comparable with those achieved elsewhere in the organization.

The quality successes achieved in other parts of the organization provide at least three stimuli that encourage rapid progress in administrative and support areas. The stimuli relate to expectations about rates of quality improvement, acceptability of quality initiatives, and resources for making improvements:

Expectations: As other parts of the organization achieve quality improvements, their expectations of high-quality performance from administrative and support functions rise, and they start encouraging or (putting pressure on) those functions to achieve similar improvements.

Acceptability: The successes achieved elsewhere in the organization demonstrate to administrative and support personnel that the techniques actually work in their own company (reducing the "not invented here" syndrome).

Resources: The individuals and teams who achieved progress elsewhere in the organization are available as resources—a pool of internal quality consultants within the company, familiar with the organization and its internal operations.

INTERNAL AUDIT: AN EXAMPLE OF PROFOUND CHANGES IN ADMINISTRATIVE AND SUPPORT OPERATIONS

Overview. The three types of quality-based improvements (doing things better, doing different things, changing roles and relationships) and the value of eliminating non-value-adding work can be illustrated in all administrative and support activities. However, one of the most impressive illustrations of the scope and impact of these changes is occurring in the internal audit function. For a variety of reasons, it is a particularly interesting example of the ways administrative and support functions are changing as companies progress on their quality journeys.

First, internal audit can be looked at as the quality control unit of the management system, with every bit as much potential for improvement as quality control activities in manufacturing operations. In many companies, however, the audit function has been performed in ways quite inconsistent with the organizational culture, roles, and ways of work necessary for achieving revolutionary rates of quality improvement and increases in customer satisfaction. In these companies, internal audit has been a corporate police force, increasing stress and tension as it proved its value—and superior influence—by finding errors and weaknesses in the departments being audited. Rather than building collaboration and breaking down barriers, such departments traditionally did the opposite. Changes in some internal audit groups represent a virtual reversal of past practices—dramatic changes in ways of contributing to an organization's success.

Second, the changes in internal audit are significantly increasing the value added by that function while reducing the cost of performing it. Third, these changes are permitting other parts of the organization to modify the ways they work, resulting in marked additional cost reduction and work simplification. And fourth, the changes in internal audit serve as models of the changes occurring elsewhere in administrative and support operations.

Examples of Improvements. The examples that follow are representative of the exciting changes taking place in internal audit groups and illustrate the four types of quality-based improvements discussed earlier.

Improvements from Doing Things Better—Improving Well-Established Processes. American Standard is one of many companies that have redesigned their audit reports to reduce cycle time. The new process has eliminated drafts and even the traditional audit recommendations. Computer-assisted audit programs have been developed and adopted—and shared with the operating groups—to permit the examination of large data sets without reliance on nonstatistical small samples.

Motorola's internal audit group has successfully applied the company's 6σ and $10\times$ cycle-time reduction initiatives to its activities, redesigning and simplifying its audit processes dramatically. Although the company has grown considerably in recent years, Internal Audit has remained the same size while increasing the scope and depth of its work. In one initiative, Motorola is building internal control processes into its operations to allow its units to audit themselves and to permit Internal Audit to shift its focus from auditing transactions to auditing the self-audit processes. In another initiative, Internal Audit's improvement approaches have been used by Motorola's Public Contracts Compliance Office to collaborate with a key customer, the U.S. Department of Defense. The collaboration has reduced the cycle time of government audits from over 1 year to 2 to 3 weeks while producing audits of higher quality at significantly lower cost to both parties.

Improvements from Doing Things Better—Achieving Traditional Goals in Very Different Ways. The primary goal for internal audit departments frequently has been stated in terms of improving the internal control environment. At Gulf Canada Resources, a process called *control self-assessment* (CSA) has replaced some traditional auditing activities and increased the effectiveness of the ones that remain. In CSA, the unit being audited identifies its own control issues in a team-based meeting using computerized survey feedback methods. Control becomes internal to the operating unit and

intrinsically motivated rather than arriving in the form of an external police force providing extrinsic motivation. The CSA workshops reveal more and different control concerns than traditional audits and provide a broad picture of the corporate culture. CSA produces more audit findings and larger numbers of high-quality audit findings than are found with traditional audits (Makosz and McCuaig 1990*a*) and detects serious, hidden companywide problems ("cultural rogue elephants") that appear as ambiguous problems throughout the company in ways that disguise their seriousness and overall cumulative impact (Stoner and Werner 1995).

Improvements from Doing Different Things—Undertaking New Operations. American Standard's audit group responded to the company's adoption of a just-in-time (JIT) manufacturing system by changing the framing and content of its work. Training of auditors was extended to include the just-in-time concepts, and auditors now spread JIT concepts throughout the company and assist the operating units with the related measurement systems.

An early supporter and adopter of the company's quality initiatives, Baxter International's Internal Audit Group quickly discovered that a key benefit of quality processes is the time and energies freed up to add additional value to its audit customers and the organization. One of the more striking ways it has invested these resources is in undertaking "special projects" in areas as diverse as electronic data interchange, treasury processes, managing overlapping responsibility and authority, and assisting Baxter's ultimate customers. Projects such as these have helped Internal Audit integrate its traditional audit responsibilities with an internal consulting role that has significant cost and knowledge advantages over the use of external consultants. Now the demand for Internal Audit's services far exceeds the group's resources, a significant change from the days when Internal Audit was seen as an adversary.

Improvements from Changing Roles and Relationships—Increasing Organizational Learning and Becoming an Organizational Change Agent. At Raychem, Internal Audit views auditing as a process containing many "continuous learning loops" and interprets its activities as building and strengthening those loops (Stoner and Werner, 1995). At one level, these activities seek to make Internal Audit a vehicle for creating a high-trust, self-regulating, continuously improving control environment. At another level, Internal Audit is working to make itself and the rest of the company superior learning organizations. The continuous learning loops seek at least five types of changes in Raychem's audit process:

- *Anticipatory change:* Responding in advance to audit customer needs
- *Self-control:* Building auditee self-control directly into audit processes
- *Trust:* Increasing trust in the audit process by making it more predictable and win-win
- *Added value:* "Migrating up the value-added food chain" by replacing lower-value-added audit activities with higher-value-added activities
- *Diversity:* Increasing Internal Audit's professional diversity through the use of guest auditors and audit staff members with nontraditional backgrounds

Perhaps Internal Audit's most exciting new role is that of organizational change agent. American Standard has created an innovative analogue to JIT in manufacturing that is moving the company toward a just-in-time office environment. It is aggressively spreading best practices throughout the company—for example, establishing a *kanban* system for corporate office supplies after observing its successful use in manufacturing. And with the luxury of fewer deadlines than other parts of the organization, it is becoming a transformational thinker, playing an increasing and ongoing role in the evolution of the company as a whole.

Improvements from Eliminating Non-Value-Adding Work—Recognizing When Organizational Changes Render Traditional Activities Obsolete. When the American Standard Companies adopted their JIT manufacturing system, its audit group realized that much of its traditional work—such as verifying inventory balances—added little, if any, value to the company or its customers and would naturally disappear as inventory balances were dramatically reduced. Internal Audit responded by eagerly shedding these activities so that it could devote its resources to tasks seen to be truly value-adding.

Improvements from Eliminating Non-Value-Adding Work—Ceasing Activities That Can Be Done Better Elsewhere. One traditional component of an internal audit report is the auditors' "recommendations," the auditors' instructions to the management of the audited unit for improving areas of managerial weakness or inadequate control identified in the audit's findings. Traditionally, the findings and the parallel recommendations have been an important way auditors have demonstrated they were doing their job well. An estimate of the savings achieved from implementing the auditors' recommendations is a metric used by some companies to calculate the value of the audit process. For example, some audit groups have a goal of saving three times the cost of the audit and measure their success in doing so by calculating the value of recommendations that actually get implemented.

Other audit groups, including those at Raychem and American Standard, have concluded that there is significant cost and little added value in these recommendations; they no longer make them. Instead, they issue their reports with the findings from the audit, the actions the unit's management has committed to take to correct the control or managerial concerns raised in the findings, the names of the responsible individuals, and the timetable for completing the actions.

The reasoning behind such changes is interesting. Recommendations are frequently subject to negotiation between auditors and auditees and cause delay both in issuing the audit report and in fixing the problem. For example, when American Standard was studying its audit process, it found that one of the major time consumers in the process was the time it took to reach agreement on recommendations with the auditee. When the auditor and the audited unit differed in preferred ways to resolve control problems, coming to an agreed wording on recommendations often was tedious and time-consuming. Even when there was agreement on the recommendations, it was not always clear who first developed the ideas for improving a situation. The audited unit could easily feel that the auditors were claiming credit for ideas the unit had already formulated or had even already started implementing. Furthermore, audit recommendations that were unnecessarily costly to implement or were at odds with management's insights often were damaging to the relationship between auditor and auditee. American Standard concluded that the long-established practice of including recommendations in the audit report was not actually adding value but was instead creating unnecessary work and delays—a major and very valuable insight of their study of its audit processes (Stoner and Werner 1995, pp. 7–36).

Companies that have eliminated audit recommendations from their reports have concluded that since it is typically the unit's managers and not the auditors who most deeply understand the nature of their business, it is the managers who are in the best position to design improved controls, especially since they ultimately will be held accountable for the success of the changes.

ENHANCING THE QUALITY OF ADMINISTRATIVE AND SUPPORT ACTIVITIES

Overview. The well-established quality planning, control, and improvement processes are as effective in improving and maintaining administrative and support processes as they are in improving other organizational processes. In this part of this section we note some of the aspects of planning, control, and improvement in administrative and support operations that are worthy of special comment.

Quality Planning. The quality planning process for administrative and support operations does not differ inherently in content from the quality planning process for manufacturing, but it does often differ in context and motivation. The basic quality planning steps are described in Section 3 and are summarized by Juran in many places (such as Juran 1988 (Planning), p. 14). In very brief form, they are "Identify the customers and their needs. Develop a product that meets those needs. Develop a process capable of producing the product." These steps are as appropriate for administrative and support services as they are for designing and producing an automobile or for performing open heart surgery.

Although the quality planning process for administrative and support operations may be essentially the same as for manufacturing, contextual differences include the low frequency with which brand-new processes are designed from scratch, the comparatively low power of customers to

demand quality improvements, and the relative ease with which information on key elements of customer satisfaction can be gathered from internal customers.

The infrequency of establishing new systems and the lower power of internal customers to demand quality improvements from their internal suppliers (since internal customers often have difficulty taking their business elsewhere) both tend to reduce the likelihood or ease of systematic planning for quality improvement. On the other hand, the closeness of internal customers simplifies gathering data about their needs, and this makes quality planning easier and perhaps even more effective.

Whereas each new physical product or new customer service offers a clear opportunity to design in quality from the very beginning, administrative and support services tend to experience undisciplined growth and are typically already well entrenched throughout the organization before they receive systematic quality management attention. For example, when a quality improvement team at Aid Association for Lutherans (AAL) studied the organization's billing and collection process in the early 1990s, it discovered many opportunities for improvement. (The AAL experience is discussed further below, under Other Examples of Quality Improvement in Administrative and Support Activities, Finance.) The process had been designed in 1960 when AAL offered only one product, whole-life insurance. As new products were added, each received its own bill with its own billing cycle. "[Billing procedures resulting from] the piecemeal addition of new products proved cumbersome; manual procedures were often required to make payments `fit' into the existing whole-life system. The system made no one happy. AAL found it financially inefficient, and customers got multiple bills and few payment options" (Sharman 1995, p. 30).

A well-known exception to the tendency of organizations to allow administrative and support operations to emerge and grow in an unplanned manner is the AT&T Universal Credit Services (UCS) company that was formed in 1990 and won the Baldrige Prize in 1992. In UCS's case, the company's original business plan was an integrated strategic plan for business and quality that designed high quality internal administrative and support processes from the very beginning (Kordupleski et al. 1993). A year after the card was introduced, senior management used input from associates to revise its values, mission, and vision (Kahn 1995). One UCS administrative process designed from the beginning to be consistent with quality management principles and to support high-quality performance is UCS's compensation and reward system (Davis et al. 1995). This system is discussed later in this section.

Three aspects of quality planning for administrative and support operations that are important to note are the role of breakthrough goals, the use of benchmarking, and the participation of administrative and support personnel on cross-functional process re-engineering projects.

Setting Breakthrough Goals. Companies that set breakthrough improvement goals to challenge themselves to rethink the way they perform every activity provide an environment in which dramatic improvements in administrative and support operations are expected. Motorola's series of 10× and 100× defect-reduction goals in the 1980s and its 10× cycle-time reduction goals in the 1990s are well known examples. When these goals are companywide, they involve administrative and support operations. For example, Motorola's defect-reduction goals prompted the finance function's first major quality project—reducing the time required to close the corporate books—and also was the initial stimulus for its Internal Audit function to measure its performance in new and creative ways and to demand the same level of quality of itself as the manufacturing side of the company (Stoner and Werner 1994, pp. 153–154). Subsequently, Internal Audit responded to the company's cycle-time challenge by working to reduce the time spent on each audit activity to one-tenth its prior amount (Stoner and Werner 1995, p. 122).

Competitive Benchmarking to Identify Improvement Opportunities. Competitive benchmarking has become a common practice within administrative and support functions to identify and prioritize operations for continuous and large-scale improvement. In the early 1980s, before competitive benchmarking was a widely used quality tool, Motorola began inviting guests—leaders in their fields—to speak to its people. Motorola gives credit to Westinghouse forteaching Motorola, during an invited visit, how to use quality-improvement task forces (Stoner and Werner 1994, p. 152). One of the conspicuous successes of the task forces was the introduction of competitive benchmarking into Motorola's quality efforts throughout the company. Early administrative and support functions benchmarked were the processing of accounts receivable, accounts payable, and invoices.

When Southern Pacific Transportation Company began its quality journey in the fall of 1990, it made innovative use of the Interstate Commerce Commission's R1 reports, annual submissions from all railroads detailing operating and cost data. The company was emerging from a period of ill-fated expansion that had culminated in a failed merger attempt and 5 years in trust. The R1 reports showed its costs to be higher than those of its competitors in most categories. Southern Pacific's Finance Department responded by comparing the operating and financial information of its competitors with its own R1 data, line item by line item. Included were two calculations of savings—first, the savings if Southern Pacific matched the average performance of its competitors on each line item and, second, the savings if it matched the performance of its best competitor in each activity. Southern Pacific concluded that at least $400 million could be saved by bringing current operations in each activity up to the standards of the competitors most similar on important dimensions to Southern Pacific (Stoner and Werner 1995, p. 213). The comparison, which is redone each year as new data become available, is used as Southern Pacific prioritizes its quality efforts and has been a significant factor in breaking down the belief, previously held by many in the company, that order-in-magnitude improvements in quality and costs were not possible (Stoner and Werner 1995, pp. 205–229).

Cross-functional Process Re-engineering Projects. Many cross-functional process re-engineering teams include members from administrative and support areas. For example, a team working to improve the order-fulfillment process logically would include members from finance and accounting. This provides an opportunity for administrative and support personnel to learn about and experience quality activities, even if there are no quality initiatives being pursued within their own functions.

By participating on these teams, administrative and support staff are exposed to many of the skills of quality improvement. They experience first hand successful quality applications. They learn to appreciate better the role that administrative functions play in supporting the rest of the organization. And they are often prompted to initiate similar quality efforts in their own processes.

Quality Control. The classic tools of quality control and the "seven new tools" (Mizuno 1988) are just as useful in administrative and support operations as they are in other operations. Gryna (1988, pp. 8–20) provided a series of examples of the use of the seven classic tools of quality control (flow diagrams, histograms, Pareto charts, run charts, cause-and-effect diagrams, control charts, and scatter diagrams) in administrative and support operations. Figure 26.2 is a flowchart for payroll changes provided by International Paper Company. Figure 26.3 provides a control chart for the time to process a freight invoice.

Quality Improvement. The quality improvement process challenges the notion that quality problems represent immutable fate (see Section 5). It addresses performance deficiencies in stable processes that have become accepted as inevitable by organizational members, even when those deficiencies are unacceptable. The objective of the quality improvement process is to examine the deficient process for root causes of the deficiencies and remove or mitigate the effects of the root causes—permanently improving process performance and reducing the costs of poor quality associated with the deficiencies. Such improvement is carried out project by project. Quality improvement processes provide a convenient vehicle for accomplishing many goals concurrently, including improving quality, reducing costs, involving and developing people, training in managing for quality, and contributing toward the total organizational transformation required for competing in a global economy based on ever-improving quality.

As noted earlier, systematic quality improvement approaches include both the small-scale, continuous improvement efforts sometimes called *kaizen* and the large-scale, discontinuous improvements usually called *re-engineering.* There has been considerable confusion about re-engineering and its role in managing for quality. Cole (1994) provides a valuable discussion of this confusion and suggests how re-engineering fits into the tools of managing for quality.

Both these approaches, continuous and discontinuous improvement efforts, are team-oriented and seek to improve process performance. The discontinuous efforts are usually biased toward radical gain through radical change—the "clean slate" approach. Continuous improvement efforts aim at important but less ambitious gains in performance. They are generally applied to the process as it is

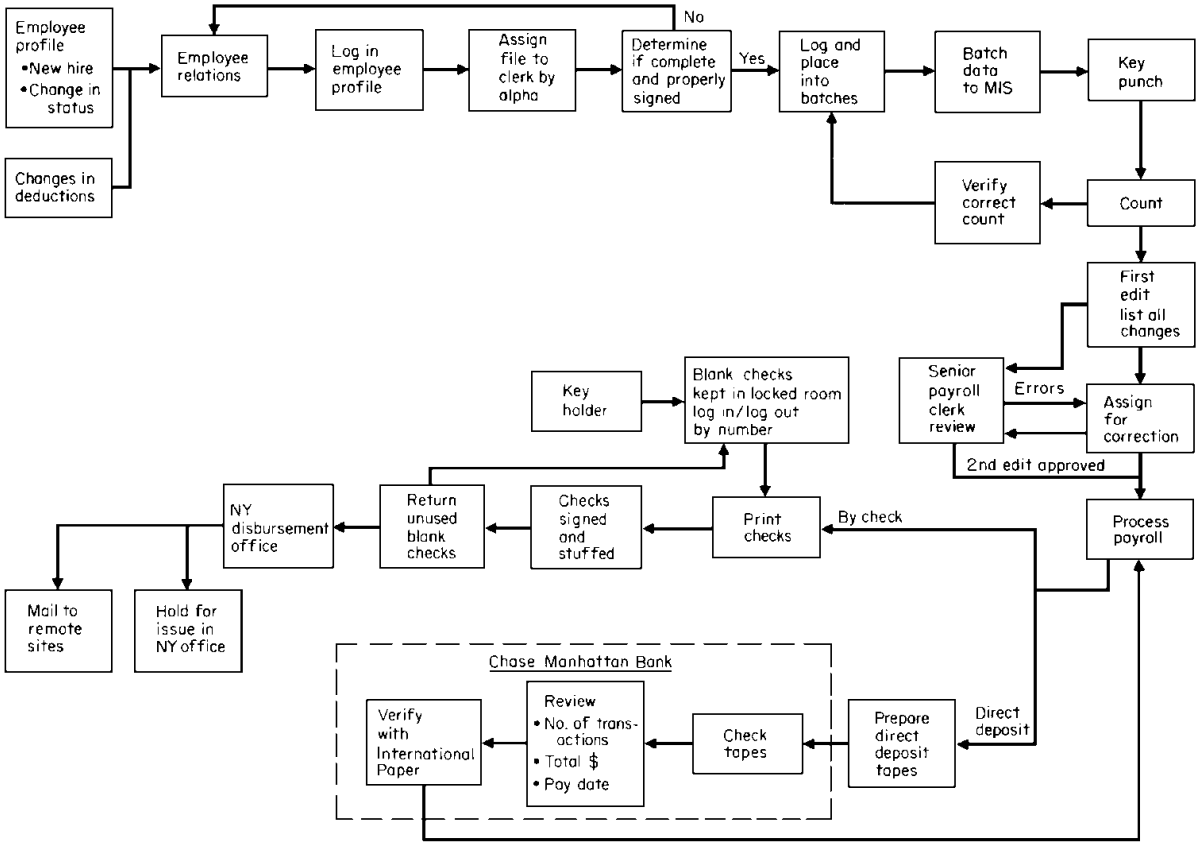

FIGURE 26.2 Flowchart for payroll changes. (*Courtesy of International Paper Company.*)

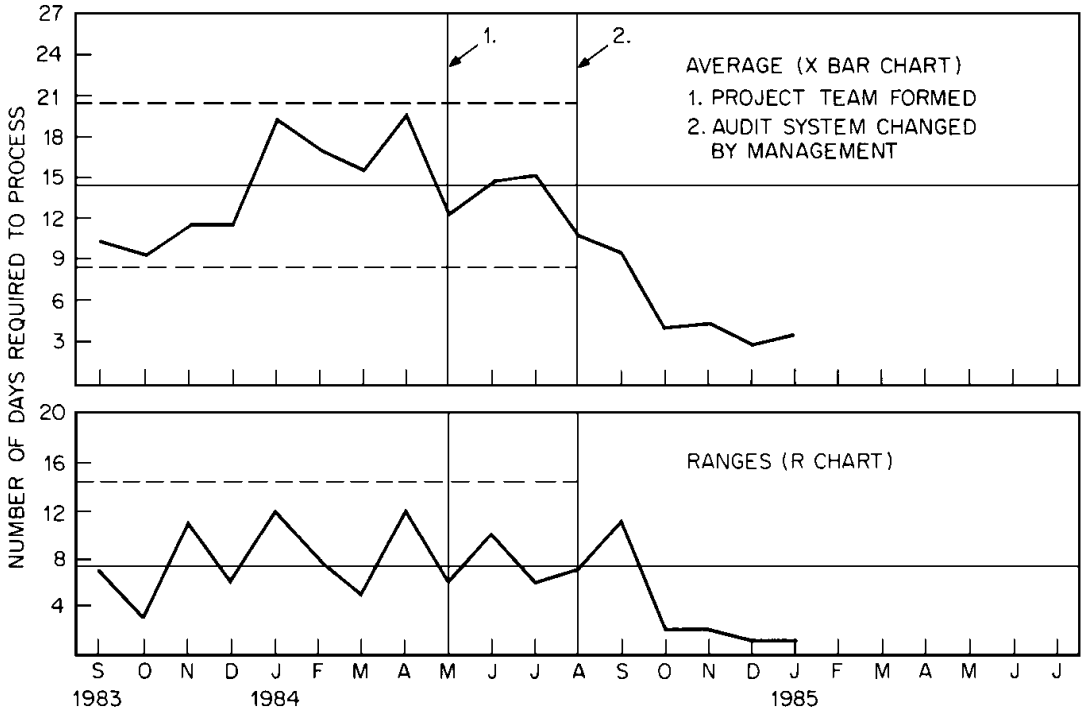

FIGURE 26.3 Control charts for time required to process bills. (*From Baker and Artinian 1985.*)

found and forego the temptation to overhaul the entire process before thorough study. The continuous approach tends to be less disruptive in two ways. First, the changes are usually incremental, leaving in place an improved but still familiar process. Second, the organizational changes required to execute the improved process are likely to be small by comparison with the discontinuous approach. Consequently, there is less near-term uncertainty as to whether the improved process will work. The more far-reaching organizational changes associated with discontinuous approaches bring with them near-term turbulence in the organization and the uncertainty of the new and unfamiliar. Some of the difficulties involved in using the discontinuous approach are discussed in Hall et al. (1993) Hammer and Stanton (1995).

OTHER EXAMPLES OF QUALITY IMPROVEMENT IN ADMINISTRATIVE AND SUPPORT ACTIVITIES

Overview. In an earlier part of this section we illustrated quality improvement by profiling innovative changes taking place in Internal Audit. In this part of this section we look at other examples of quality improvement throughout administrative and support units.

The examples are organized by functional area: accounting, controllership, and internal audit, finance, human resources, information systems, legal services, and marketing. However, few take place solely within the boundaries of traditional functional silos. To the contrary, many illustrate the power of quality improvements to break down these structural barriers to improved performance.

Accounting, Controllership, Internal Audit. Accounting's traditional role of measuring and reporting business performance places it naturally at the center of many quality improvement efforts. Since collecting organizational data involves numerous repetitive steps, accounting is a particularly fertile area for process improvement. And since, as many argue, "what gets measured gets managed," accounting plays a key role in communicating what is important within an organization.

Closing the Books. Many companies have significantly reduced the length of time required to close their corporate books. In doing so, they also have reduced the cost of this repetitive corporate activity and freed up resources for use in activities that add greater value.

One of the earliest and best-known examples is the reduction in time required to close Motorola's corporate books each month. As the project began in the early 1980s, the monthly close averaged 9 working days. As a result, the updated forecast for the coming month was not available until 11 or 12 working days of that month had passed, and the month typically was two-thirds over before the operating committee meeting to review the prior month's activity and the current month's plan.

Motorola found that much of the cycle time was spent correcting erroneous journal entries, waiting for data from overseas units, and entering and correcting data in a headquarters computer. "In the past, the accuracy of journal entries—greater than 98.6 percent—had been considered acceptable. However, the company made some 600,000 entries per month worldwide, and even with 98.6 percent accuracy, 8000 entries each month were wrong. Correcting and reconciling those entries at month's end were enormously time consuming." Improvement efforts led to a decrease in monthly journal entry errors from roughly 8000 to 2. Overseas data started being forwarded directly to headquarters rather than through three intermediary locations that routinely approved the information after considerable delay. The number of local data-entry steps was reduced by bringing back in-house previously outsourced data-entry activity. These and other changes reduced the length of time required to close the corporate books to 4 days in 1990 and to 2 days in 1992. Motorola estimated that the reduction from 6 to 4 days saved $20 million per year, with another $10 million saved with the subsequent reduction from 4 to 2 days (Stoner and Werner 1994, pp. 154–155). Many other companies have initiated similar book-closing projects, e.g., Raychem's Five-Day RACE—Raychem Accounting Close Engineering (Stoner and Werner 1995, p. 158).

Reporting Nontraditional Data. As the focus of systematic quality management on customers and processes has become more widely understood, organizations have expanded their traditional accounting-based measurement systems to capture and disseminate these new performance dimensions. Customer satisfaction data are gathered through direct questioning and surveys and are summarized in many ways, including Solectron's grading system (described below, under Finance) and AT&T's customer value-added (CVA) indexes, which compare the satisfaction of AT&T's customers with that of its competitors (Kordupleski et al. 1993). Process functioning is typically captured by measuring total errors, often weighted by importance to customers, as Federal Express does with its service quality indicators (SQIs); by measuring failures in relationship to opportunities to fail, as is done by Motorola's widely copied 6σ measurement system; and by computing process cycle time (Stoner and Werner 1993).

> Recognizing the importance of these new measures and of making them visible, the chief financial officer of IBM Credit Corporation asked each business unit to support the accounting function in adding one customer satisfaction measure and one process measure to the monthly reports of the unit's performance (interview with Stoner and Werner, November 22, 1991).

Improving Internal Audit. Changes in corporate Internal Audit in many companies have been so numerous and so dramatic that we used Internal Audit as a comprehensive example earlier. These changes have moved these audit groups from their traditional roles as corporate police to new supportive roles that add greater value to the organization at the same time as they yield greater compliance with corporate control systems.

Finance. The following examples, typical of quality progress in finance, illustrate successes in improving financial processes, distributing finance's work to place it closer to customers, integrating financial analysis with other operations, and improving the alignment between the organization's financial goals and those of its shareholders.

Improving the Accounts Payable Process. Early in the 1980s, the Ford Motor Company investigated ways of improving its accounts payable process. Plans to introduce automation were developed that promised an impressive 20 percent reduction in the 500 workers then required to pay the suppliers of Ford's North American operations. A benchmarking study, however, revealed that Mazda required only 5 employees to pay its suppliers worldwide and forced Ford to rethink its improvement plans (Hammer 1990).

A subsequent study of the payables process revealed that department members spent most of their time resolving discrepancies among the three documents required for each buy: purchase order, receiving report, and invoice. If the three documents matched, a check was issued; if not, an investigation was begun to resolve the differences. Since there were 14 data items on the documents, mismatches were common, and investigations could be quite time-consuming.

Ford redesigned its accounts payable process to eliminate the receiving report and invoice and to reduce the number of items needing matching to three: supplier code, part number, and quantity. While a purchase order is still sent to the supplier, it is not copied to accounts payable; instead, the data are entered into a database accessible at all receiving docks. When goods arrive, the receiving clerk checks the computer to see if they match the order. If not, they are rejected and returned to the supplier. If they match, the shipment is accepted, and the arrival information is entered into the database, which automatically triggers payment to the supplier at the appropriate time. The new process requires only about 150 workers and saves millions of dollars every year.

Improving the Billing and Collections Process. The simple billing and collection process Aid Association for Lutherans (AAL) designed in the 1960s for its single financial product—whole-life insurance—was appropriate for the company's and its customers' needs at that time. However, by the early 1990s, AAL, the largest fraternal benefit society in the United States, was offering to its members life and disability insurance, annuities and retirement products, mutual funds, long-term care and Medicare supplemental coverage, and savings and loan products through a credit union.

Over the years, the company had adapted the old system for each new product and product feature. However, many of the new products and features had billing patterns different from whole-life insurance, leading to unwieldy manual adjustments and software patches. For example, a customer purchasing more than one product received separate bills on different billing cycles for each.

AAL formed a team of managers and specialists in billing and collections that studied and diagramed the process, identified and surveyed customers of the process to identify their requirements, and identified, mapped to customer requirements, and prioritized some 50 product or process features. Customers asked for a single invoice for all their accounts with certain characteristics: clearly identifiable as a bill, accurate, arrives on time, easy to read and understand, and permits a variety of payment options. A parallel analysis identified as major problems various elements of cost of poor quality—internal failure costs (rework within AAL) and external failure costs (rework caught by or affecting external customers).

Over a 15-month period, the team began to re-engineer major parts of the process and also made incremental changes in existing parts. Among the incremental savings: Increased use of electronic funds transfer is expected to save $75,000 per year, and providing greater payment flexibility and improving the posting of retirement plan billing are expected to save another $50,000 to $80,000 annually. AAL expects the re-engineered process to include a single billing account for each customer, electronic transmission of new business applications from the field staff to home office processing systems, and the use of image-processing technology to minimize and automate application processing, all providing significant additional cost savings and customer satisfaction (Hooyman and Harshbarger 1994).

Checking Customer Credit-Worthiness. Solectron, a recipient of the Malcolm Baldrige National Quality Award in 1991, is a contract manufacturer of electronic components and systems. In the company's early days, there was no need for a formal procedure for checking a customer's credit-worthiness. The company was small relative to its customers and could not afford to extend much credit. Its customers were either large, well-established companies or small firms personally known to Solectron's management. However, by the mid-1980s, Solectron and its customer base had grown to a point where extending credit was becoming increasingly important and appropriate.

Finance responded initially by developing an elaborate and traditional credit analysis process similar to commercial bank systems. The system proved cumbersome, however. Few members of the sales force had the requisite finance skills or wanted to take time from their sales activities, so credit analysis took place within the Finance Department. Salespeople lost considerable time as they contended for the attention of the company's sole credit analyst, lobbied for credit approval, and were forced to wait for the credit decision. It was difficult to be responsive to prospects. Worse, a negative decision meant that the time invested to cultivate a potential customer was wasted, leaving the sales staff and the rejected prospect frustrated and very likely angry.

Solectron simplified the process. Now Finance divides potential customers into three groups: "A customers," those which are large and financially healthy and for which no credit check is required; "B customers," the middle-sized prospects for which it is important to check credit-worthiness; and "C customers," those which are financially weak and are not to be pursued unless a special strategic rationale exists. Salespeople are free to pursue A customers without further financial review. For B customers, Finance designed a credit scoring sheet that uses easily available data, is simple for the salespeople to fill out early in the prospecting process, and sums to a number that translates directly into the credit line Solectron is willing to extend.

The new process has eliminated the frustrations of the prior system. Salespeople no longer waste time pursuing unacceptable credit risks and now know exactly how Finance will respond to a new customer. Because it is so easy to understand, the form itself teaches the sales staff how and why Finance makes the credit decision. Finance staffers are now seen as a support system and no longer as the "bad guys" who interfere with sales. And by distributing finance skills to the sales force, the company's credit specialist has eliminated much routine work and can devote more time to supporting strategic marketing decisions (Stoner and Werner 1994, pp. 186–187).

Capital Budgeting. Several companies now view their capital budgeting activities in process terms. In 1989, Alcoa began a project to improve the company's capital expenditure decision process in

response to benchmarking and other data that indicated that the company lagged behind its competitors in efficiency of capital utilization. A 16-person, cross-functional, cross-divisional, high-level team, including 7 vice presidents, reviewed past data and studied potential causes of suboptimal capital expenditure decisions. The team concluded that the company's request for authorization process was seriously flawed because it did not consistently provide the right technical and business information to make the decision, reveal the underlying quality problem-solving process used to arrive at the recommendation, provide quantitative data to allow project results to be verified, or provide appropriate accountability for project success. Among the improvements was the development of a decision analysis summary to provide project reviewers with more detailed analyses and strategic, market, and manufacturing process context (Rosenfeld 1990).

The *business case approach* (BCA) is a project analysis process used by Federal Express that emphasizes a broad companywide focus rather than a narrow financial or departmental one and the building of a team bringing diverse perspectives into the analysis at early stages. Most of the financial analysis takes place during repeated iterations as the project concept and design evolve rather than at the end, when the project design has been completed. Along the way, financial models of the project and its implications are assembled, so the repeated iterations may be analyzed as alternative approaches. The BCA process does not end when a completed proposal is presented to senior management nor when senior management makes its decision. Rather, the modeling and documentation are retained so that implementation alternatives can be evaluated at key decision points if the project is accepted, or the project can be reconsidered as new technological or market data emerge if the project is rejected (Stoner and Werner 1994, pp. 131–137).

Targeting Shareholders. The search for superior service for shareholders has led to innovative approaches in the investor-relations function. A growing activity within these functions involves creating a better match between a company's financial goals and breadth of public ownership and the investment needs of the company's shareholders.

Founded as a long-distance telephone carrier, MCI Corporation initially attracted investors looking for that industry's historic pattern of high dividends and low earnings volatility. As the company diversified into local telephone service, media services, and communications outsourcing, however, its earnings and dividend patterns could no longer be predicted to adhere to those patterns. MCI's investor-relations group responded by creating and using a database of institutional shareholder preferences to locate potential new investors (Brenner 1996).

The stock of EMC Corporation, a manufacturer of technologically innovative computer data storage systems, initially attracted a large number of short-term-oriented technical traders when the company was growing at a very rapid rate. As EMC's growth rate settled down, the company made a concerted effort to pursue shareholders with a long-term investment horizon (Brenner 1996, pp. 60–61).

In 1992, GATX Corporation began a project to create additional liquidity for its investors by expanding its shareholder base. At that time, five institutional shareholders owned 51 percent of the company's outstanding stock, and their trading activities often caused significant price fluctuations. By 1986, that 51 percent was owned by 28 institutions, another 20 percent was owned by retail shareholders, daily trading volume had increased significantly, and large institutional trades were being made without an appreciable effect on the company's stock price (Brenner 1996).

Human Resources. In Section 15 of this handbook, the term *human resources* (HR) is used to refer to the culture, relationships, and behaviors within organizations that are necessary to achieve high-quality performance on a sustained basis. This part of this section builds on Section 15 by addressing how corporate- and divisional-level human resources functions contribute to achieving these types of culture, relationships, and behaviors.

Human resources functions play key roles in enabling organizations to achieve the types of skills, attitudes, values, and other cultural changes that are required to move from traditional command and control management systems to modern quality-based management systems. The deep cultural change involved in making this transition requires that a great amount of "people change" must occur. Human resources functions are especially well placed to contribute to this transformation because the function is actively involved in designing and administering many of the levers of organizational

change—such as recruiting, selecting, training, developing, rewarding, compensating, and promoting. The function is also well placed to contribute because the values that have long been "preached" by HR professionals—teamwork, collaboration, power equalization, courage in risk-taking, integrity, respecting people, seeking excellence, etc.—are far more consistent with the emerging quality-based management systems than with traditional command and control management systems.

Although some well-established human resources activities will continue to be performed much as they have been performed in the past, a large amount of change in HR practices and philosophy is needed in virtually all organizations if these functions are to play important roles in the organization's quality transformation. In some companies, these changes are taking place. Schonberger (1996) discusses how HR premises and practices are changing in organizations that are approaching world-class manufacturing status and provides many examples. Blackburn and Rosen (1993) studied the HR practices of eight Baldrige Award winners and reported "evidence of a paradigm shift in the HR policies by those organizations" (p. 50). They found that the companies had developed "portfolios" of human resource management policies to complement their strategic quality management objectives. Other companies seem to be lagging far behind. For example, a survey of human resources functions in 245 companies from a wide range of industries and regions of the United States indicated that most HR managers "talked the talk" well but were very slow in "walking their talk" (Blackburn and Rosen 1995).

The discussion below addresses ways in which traditional human resources operations are being improved; how HR's philosophy, ways of doing its traditional work, and traditional roles are changing; and a new role that is emerging for human resources functions.

Improving Traditional Human Resource Operations. Well-established human resource operations have provided rich grounds for improvement using classic quality improvement approaches. Leonard (1986) reports how a cross-functional team developed flow diagrams to analyze and improve the process for recruiting exempt-salary personnel at Rogers Corporation. The quality improvement process also has been used to reduce employee dissatisfaction with savings and investment plans and to reduce the costs of administering these types of plans. Since very early in its existence AT&T Universal Card Services has used quality teams on an ongoing basis to improve quality process measures such as how quickly Human Resources responds to job résumés and issues employee paychecks (Hall et al. 1993).

Changing HR's Philosophy and Ways of Doing Its Traditional Work. A number of HR functions have been wrestling with the changes necessary to bring their philosophy and practices more into alignment with the needs of quality-driven companies and the requirements of a quality-driven global competitive environment. Haddock et al. (1995), for example, used previous empirical and conceptual studies to develop a list of characteristics of the HR philosophy of organizations deeply committed to quality management. These characteristics, listed in Figure 26.4, include treating employees as valuable resources and as partners, taking a long view of the ongoing personal fits of employees to the organization, involving employees actively, and encouraging employee growth and contributions that go well beyond traditional job descriptions (Cardy and Dobbins 1996).

The differences between the HR philosophy and practices appropriate for the traditional command-and-control, Tayloristic management system and those appropriate for quality-driven organizations have been discussed by several writers, including Petrick and Furr (1995). Compared with traditional management systems, information is shared more readily and widely, customers and employees are attended to much more, and education and training go beyond a narrow job focus.

Blackburn and Rosen (1993), Haddock et al. (1995), Petrick and Furr (1995), Schonberger (1996), and other authors have suggested many HR practices consistent with managing for quality. These include

- *Staffing* (*recruitment, selection, and utilization*): Going beyond screening largely or exclusively on technical job skills to looking for recruits with interest and skills in teamwork, problem solving, and quality improvement; looking at employees' fit with the larger organization rather than with a particular job; emphasizing the ongoing development and effective utilization of the organization's human resources

- Employees and professionals are treated as valuable resources, and their central role in improving quality is emphasized.
- The psychological contract between employee and employer becomes more of a partnership in which employees are recognized as key sources of competitive advantage.
- The personal fit of employees with the organization and the taking of a long-term perspective are consistently emphasized.
- Ideas and techniques of employee involvement that fit the specifics of an organization's situation are integrated or coordinated with continuous quality improvement efforts.
- Employees are encouraged to develop and to accomplish as much as they can, both qualitatively and quantitatively, within the framework of organizational needs rather than to focus on what the specific job requirements are.

FIGURE 26.4 Human resources philosophy consistent with managing for quality. (*Adapted from Haddock et al. 1995, p. 144.).*

- *Performance measurement and evaluation:* Emphasizing developmental feedback rather than judgments of current performance, using customer and peer evaluations, placing greater emphasis on team and organizational goals than on individual ones
- *Compensation:* Providing a "basket of values" tailored to each individual rather than only base pay and benefits (Schonberger 1996), emphasizing team and organizational incentives rather than individual incentives, emphasizing nonfinancial rewards including opportunities for self-management and recognition, paying for skills mastered rather than basing pay on job titles, experimenting with ways to avoid the problems of linking performance appraisal to compensation, experimenting with ways to avoid the problems of weakening intrinsic motivation by focusing on extrinsic rewards (Kohn 1994)
- *Training and development:* Providing comprehensive and continuous education and training, setting progressively more aggressive goals for the amount of training provided to all employees every year, preparing for cross- and interfunctional work, providing training in group and quality improvement skills
- *Management development:* Preparing managers for roles as facilitators and coaches; training in team building, strategy, and vision development techniques; training in leadership, self-leadership, and self-management (DiPietro 1993)
- *Relationship to organized labor:* Seeking collaborative rather than adversarial relations with unions, particularly in activities related to quality and continuous improvement (Redman and Mathews 1998, Wilkinson et al. 1998).
- *The role of the human resource function in management:* Emphasizing HR's key strategic role in acquiring and developing human resources, deemphasizing HR's traditional preoccupation with routine personnel activities, training employees to carry out many traditional human resource management activities on their own, seeking ways to enable employees to carry out newly emerging HR activities.

Changing Roles and Relationships. Schonberger has noted many changes in roles and relationships in HR departments of companies becoming world-class manufacturers. HR is more involved in high-level and strategic decisions while simultaneously shrinking in size. The more mundane bureaucratic orientation of HR in traditional organizations, centered around activities such as creating job descriptions and classifications, becomes less of a priority. Instead, an increasing emphasis is placed on selection and development. HR professionals shift their emphasis to team-based and self-directed training and education rather than making HR the main "trainer" of other employees and managers. The facilitator role of HR professionals also becomes more significant (Schonberger 1996). One approach used by organizations such as IBM has been to diffuse the HR function over each major unit to enable greater customization of services rather than a "one-size fits all" approach (Caudron 1993).

On the basis of a study of HR functions and quality management in the United Kingdom, Wilkinson et al. (1993) identified five phases of an organization's transformation to quality and suggested important

roles the HR function can play in each. At the beginning of the transformation—the "formulation or developmental" phase—HR can help shape the quality management approach the entire organization chooses to follow. When the organization has committed to a quality management approach—the "introductory" phase—HR's role shifts to training managers and facilitators in quality management techniques and developing vehicles to communicate the move into quality management. When significant progress on a variety of quality initiatives has been achieved, the "maintenance and reinforcement" phase has been reached, and HR's role involves maintaining momentum and sustaining a high profile for existing and new quality initiatives. One important measure to do so would involve providing incentive-compensation structures to reward progress in quality management and to evaluate and improve those structures over time. Two other phases—a companywide review and a review of the HR function's activities—overlap or are concurrent with the first three phases. In the companywide "review" phase, HR's contribution involves ongoing evaluation of the quality management infrastructure through such techniques as internal surveys and external benchmarking. Finally, in the review of HR's operations phase, HR assesses and improves both its standard HR operations and its support of its internal customers in their implementation of quality management.

Undertaking a (Almost) New Role. The variety of roles HR can play in the various phases Wilkinson et al. (1993) describe suggests that HR functions are ideally placed to play major roles in moving their organizations from the traditional command and control management system to a modern quality-based system. Wilkinson et al. note that HR can play a "change agent" role by operating with a "high profile" at the strategic decision-making level in the organization. This potential change agent role can be similar in impact to the role designed for the Organizational Development (OD) Departments and teams from the 1960s onward—departments that frequently were located within human resources functions or closely related to them in the organizational structure. Although some "OD change" efforts were dramatic successes, many were not. Part of the difficulties OD Departments experienced arose from lack of sustained top-level support and commitment (similar to Deming's call for "constancy of purpose"). However, another major factor was surely the lack of a powerful, integrated management "technology" like the one that has created the global quality revolution (Mooney 1986, Stoner and Wankel 1990, 1991). With this new global management technology now becoming progressively better understood and with its competitive power progressively more obvious, HR functions are now very well placed to play the organizational transformation role originally intended for their organizational development departments.

Information Systems. Jurison (1994) points out that for continuous improvement, information systems' role is "that of support, providing data collection, analysis and decision support functions" (p. 13). "Considering the fundamental importance of statistical data to quality improvement initiatives, it follows that information technology, with its ability to capture, process, and disseminate data, must play a key role in [continuous quality improvement]" (Jurison 1994, p. 4).

In making significant process change, information technology is often "an essential enabler without which the process could not be re-engineered. It has the potential to reduce organizational complexity, eliminate unnecessary work, simplify and streamline communications and coordination, and facilitate teamwork. Many re-engineered processes make use of [information systems] in replacing outmoded processes that originated before the advent of modern computer and telecommunications technology" (Jurison 1994, p. 13).

In addition to the important role of information systems in improving processes, they also are critically important in many other aspects of managing for quality. These include gathering customer satisfaction data and disseminating them throughout the organization; establishing effective communications processes such as electronic data interchange between the organization and its customers, suppliers, and other stakeholders; and enabling effective internal communications among individuals and teams with e-mail, team-based groupware, and other computer networking vehicles. For example, many quality organizations have linked their information systems with those of their customers and suppliers. Now, when a customer places an order, the company and its suppliers immediately see and can respond to the implications for deliveries of materials and scheduling of work. This type of seamless system reduces the delays and errors that might occur if requirements

analysis, ordering, materials delivery, and production planning had to await other, more complex, and more error-prone flows of information. Many other examples of the use of information systems and technologies to achieve quality goals appear throughout this handbook.

Legal Services. One of the more exciting areas of quality improvement in support operations is the corporate legal activity. For some corporate pessimists, the term *legal services* is an oxymoron, and efforts to achieve high quality in legal services seem doomed to failure because of the attitudes of many attorneys. In an article on the Malcolm Baldrige National Quality Award, David Garvin (1991, p. 86) noted that "examiners use various techniques to assess horizontal deployment" (the spread of quality practices across an organization). "One examiner noted that, on site visits, he heads immediately for a company's legal or maintenance group to see how it has responded to the quality effort."

In some companies the examiners would find dramatic improvements led by attorneys who are deeply committed to the quality ethic. Lyondell Petrochemical Company, Motorola, and AT&T are three companies whose Legal Departments have achieved solid successes in using quality approaches.

Jeffrey Pendergraft, general counsel and vice president of Lyondell, described the evolution of quality management in Lyondell's Legal Department as having occurred in successive stages: customer focus, teamwork, empowerment, process analysis and problem solving, benchmarking, and supplier partnerships (Stoner et al. 1993, pp. 9–10). When the company applied for the Baldrige Award, the Legal Department "got involved in the Baldrige process and…began to understand what process analysis was all about."

> As far as process analysis is concerned, we are using what we call the "potato analysis" (the Pareto analysis is too sophisticated for us lawyer types). Everybody in the department is keeping checklists of time consuming functions. Those functions with the most checks get analyzed. The difficult thing was forcing the staff to take the time to think about the process because they were so busy putting out fires. When they did that, they found tremendous opportunities for improving productivity (Stoner et al. 1993, p. 9).

The Legal Department greatly simplified the approval of feed stock purchase contracts (which frequently were being reviewed and approved by attorneys on both sides of the transaction months after the transaction had been completed), sponsored a task force of the American Corporate Counsel Association to prepare a draft crude oil purchase agreement that would be standardized and available for use by all companies in the industry, and shortened the time to negotiate long-term contracts for petrochemical sales dramatically by turning the contracts around in 2 days. Negotiating these contracts often had taken so long that sales had been taking place for a year before the attorneys had formed an agreement.

> We were able to [turn the contracts around in 2 days] by standardizing the terms and documentation of the business transaction. We were able to set up the documentation on a document assembly system so that every contract looked like an original—not a standard form. The document assembly system was developed by a legal assistant, and it has become a key competitive advantage in the industry (Stoner et al. 1993, p. 20).

Richard H. Weise, former senior vice president, general counsel and secretary of Motorola, has written that when Motorola embarked on its quality journey:

> Quality became a religion and the law department was expected to follow. We started by going through the motions of creating law department initiatives which seemed to line up with those of the corporation (constant respect for people, uncompromising integrity, development of criteria by survey and benchmarking, six sigma quality, measurement, cycle-time reduction, process design, etc.).
>
> To my surprise, I found that each corporate initiative and imperative actually applied to the legal function very well. We began to design systems and develop processes which changed the way we were doing our work. We saw and measured increases in productivity and cost effectiveness and we witnessed marked increases in the quality of our work product, the quality of our morale and the quality of our thinking (Weise 1993–1996, vol. I, p. xxvii).

Improving the Patent Protection Process. In 1990, Vincent Rauner of Motorola reported on the Legal Department's "first trial" of Motorola's quality improvement process—the preparation of patent applications (Rauner 1990). The importance of patents to Motorola's global competitiveness would be hard to exaggerate, and Rauner noted that the company "has dozens of attorneys preparing hundreds of applications per year," a major effort for the company and for its Intellectual Property Department. Rauner described how the project began initially with a focus on what happened within the Legal Department and then expanded—like so many quality improvement initiatives—to encompass a much broader recognition of the determinants of quality in the process. The department

> …mapped the activity in the Intellectual Property Department, initially starting with the receipt of an invention disclosure, then an optional search of the prior art, next the start of the patent drafting job, then obtaining the patent drawings, getting further information from the inventor, finalizing the documents, getting inventor signatures, and finally filing the documents in the U.S. Patent and Trademark Office. We looked at the times involved in these various steps and the particular steps where quality improvement would be significant. Then the thinking began to expand and the real issues became clearer
>
> First, we saw that the entire process from start to finish must be mapped. The starting point really is the conception of the idea by the engineer, then his initial record making, his testing of the idea, or experimentation, the decision to pursue or not to pursue for patent, all of which must occur before the project even reaches our department. Then after we file the patent application there is, of course, prosecution or arguing with the Patent Office Examiner, usually followed by patent issuance, all before the real test is encountered. The final proof of the pudding is whether the patent stands up in infringement negotiations or in a court action.
>
> Second, in our preliminary analysis, we noted the times for the various steps and the fact that such times were unnecessarily and harmfully long in many cases.
>
> Third, the customer situation was apparent. One customer is the inventor, i.e., the patent write-up must satisfy him. Another customer is the Patent Office Examiner who must be satisfied or the patent will never issue. Finally, an infringer must accept, and not find defects in the patent or it will not be protecting technology. If litigation is necessary, the judge must not find defects either (Rauner 1990).

This first patent process initiative yielded a series of improvements in quality and cycle time. The map of the process led to development of a patent-filing template that standardized "the format and the manner of writing up the application document." The template saved time and increased the likelihood that the application would be acceptable, with a minimum of modification, in most countries. The improved process allowed "better focus and more time for the difficult part of the preparation which is the drafting of claims and analyzing an optimum definition of the invention"—the place where the "'art' of the patent attorney comes into play."

In less than a year, the length of time between the date of conception of an invention and the decision to pursue a patent was reduced by about 30 percent, and the metric used by the company to indicate how rapidly the Legal Department acts on the invention idea once it is received fell by 74 percent, even with additional time taken in the critical parts of drafting of claims and defining the invention (Rauner 1990). These improvements in quality and cycle time have continued during the 1990s.

One of AT&T's many quality initiatives in its legal function also involved large investments in intellectual property. With a portfolio of approximately 25,000 active patents worldwide, the income from patent licensing was large and important to the corporation. In 1994 an Intellectual Property Process Quality Improvement Team was formed. The team was chartered to conduct a comprehensive review of AT&T's intellectual property–related processes and to determine whether those processes were maximizing the value of the corporation's patent and technology assets (Greene 1995). One of the team's conclusions was that "AT&T could earn more than five times the economic return on its intellectual property assets than was being achieved" (Greene 1995, pp. 4–34).

The original team led to seven process QITs dealing with such processes as patent assertion (defining and improving the process for identifying patent users and enforcing AT&T patent rights), licensing process (defining licensing process improvements to guide Intellectual Property Teams and the newly organized cross-functional Intellectual Property Department in licensing efforts), and collection process (monitoring and ensuring compliance with Intellectual Property Agreements). Greene concluded "that aggressive application of quality principles in a corporate headquarters division

can yield dramatic improvements, even though headquarters divisions typically face shifting stakeholder expectations and budgetary uncertainties" (Greene 1995, pp. 4–30).

Reusing Knowledge to Improve Contract Preparation Processes. In the early 1990s, Motorola's Legal Department sought to achieve a "step function improvement in the computer and communications abilities of the department." In doing so, it simultaneously addressed the tendency for attorneys to keep reinventing the wheel in repetitive processes, such as drafting contracts.

Two major initiatives to improve the contract-drafting process—the development of a set of model contracts (the "forms freezer") and an accessible inventory of best-practice contractual clauses (the "clause closet")—are described in Figure 26.5. The figure is taken from an end-of-1990 report on improvement activities in the Legal Department. Both the forms freezer and the clause closet continued to be extended and improved in the 1990s. And recently, the department has developed mechanisms for capturing detailed analyses of substantive legal issues (Substantive Advice Memoranda) in computer databanks and making them more readily accessible for future use.

Preventing Quality Problems. In addition to improving many of their legal processes, Motorola's Legal Department has placed a strong emphasis on preventing quality problems in at least four major ways: moving from a reactive stance to a proactive stance, moving from dispute resolution to dispute avoidance, establishing a matrix management system, and improving the management development process in the Legal Department. Suggested procedures and the philosophy underlying each of these approaches are discussed in Weise (1993–1996).

The Motorola Legal Department's many initiatives in customer satisfaction, quality improvement, defect reduction, and cycle-time reduction all contribute to the shift from a reactive to a proactive stance. Two initiatives that require special mention are in the areas of crisis management and conducting annual client review meetings to manage the department's relationships with its internal customers.

The Legal Department has taken the lead in working with other parts of the organization to anticipate and plan for areas in which crises are likely to occur. When potentially disruptive events can be anticipated and prepared for, they are no longer considered crises, since they can be avoided or since plans and training for effective response can be in place when they do occur. In the same mode, preplanning and generalized crisis-management training reduce the damage from crises that cannot be anticipated. A key factor in such preparation involves training corporate officers and line personnel not trained in the legal issues and implications of crisis events well before those surprises occur (Weise 1993–1996, vol. III, chap. 22).

The Legal Department also has taken a more proactive stance by holding client review meetings with its major corporate customers, the operating divisions. These meetings are used to assess customer

LAW DEPARTMENT
1991 OMDR
Key Focus Areas for Accelerated Organizational Change and Improved Performance

The Law Department is continuing to implement a fundamental change in the manner of carrying out its function. The focal point is a step-function improvement in the computer and communications abilities of the department.

A major part of the Law Department's function is the drafting of contracts. Recognizing the cycle-time reduction and quality improvement possibilities of computer-aided drafting, we made excellent progress during 1990 on two separate computer-aided contract drafting projects.

The first project was the development of a "forms freezer." This consists of more than 100 "fill in the blank" contracts on floppy disks available to all Motorola attorneys with PCs. The "forms freezer" works best for relatively simple standardized contracts.

For more complex, customized contracts, the Law Department developed a "clause closet." This is a computerized drafting system that uses the smallest reusable components of the Law Department's best contracts indexed on a computer so that they can be quickly retrieved and used interchangeably. These components as such are reusable in many more instances than when they were hidden in a specific contract form. We expect to continue increasing the "clause closet" database and thus continue to increase the quality and shorten the cycle time in preparation of contracts.

FIGURE 26.5 Creating a "forms freezer" and "clause closet" at Motorola. (*From Weise 1993, pp. 11–27, exhibit 2B.*)

satisfaction, report on costs charged for the services supplied, assess the effectiveness of the services, jointly develop plans for improved service at lower cost, and anticipate and plan for the coming years' legal work for the division (Weise, private communication, June 11, 1996; Weise 1993–1996, vol. I, chap. 8; Stoner et al. 1993, pp. 30–33).

One of the greatest payoffs from the Legal Department's investments in quality management has arisen from the department's success in building the alternative dispute resolution (ADR) philosophy and mechanisms into Motorola's corporate culture. ADR involves two major approaches to resolving disagreements: one involves adjudicatory procedures—such as arbitrators, referees, or private judges—that replace the traditional binding decision of a judge or jury. The second involves facilitated or structured negotiations, such as settlement conferences, summary jury trials, minitrials, and mediation (Weise 1993, vol. I, pp. 6–23). ADR offers many advantages over the slow, costly, and relationship-damaging traditional litigation process. In addition to large savings in time and costs, the ADR process is also more conducive to effective intraorganizational and interorganizational learning, improving the chances that individual or collaborative steps are taken to avoid similar disagreements in the future (Weise 1993, vol. I, chap. 6).

Redesigning the Legal Department. Motorola's Legal Department is using matrix management approaches to reduce the dangers of bureaucracy in the department. Weise believes that

> …matrix management needs to be addressed in all corporate legal departments. Lawyers don't need traditional management, and corporate law departments are very likely to be over-managed. Law firms have traditionally been filled with legal entrepreneurs, and have been vertically strong, but horizontally weak. As corporate law departments grow, they tend to become bureaucratic and this tendency has to be avoided (Weise, private communication, June 11, 1996).

Efforts to develop a more fluid organizational structure and less hierarchical and formal working climate include strong support for participative management practices—long a part of Motorola's management approach—the use of many quality improvement teams and task forces, and training and empowering nonattorneys to take over work traditionally done by attorneys—when that work cannot be eliminated altogether. Initiatives like these at Motorola are consistent with Samborn's (1994) description of ways paralegals contribute to and benefit from efforts that empower nonattorneys to perform work normally reserved for attorneys and to participate in quality improvement initiatives. Samborn reports that many paralegals embrace systematic quality improvement approaches, and some have become quality leaders in legal departments and law firms.

One of Motorola's recent major initiatives involves improving the professional and management development process in the Legal Department. In 1993, the department undertook a major review and redesign of those processes when survey results of the Legal Department's members showed considerable concern about the extent to which they had understandable, meaningful, and satisfying career plans and paths. The review of existing "personnel-type" programs yielded a surprisingly large number of programs with significant amounts of overlap in intents and purposes but without clear job descriptions and comprehensive job performance criteria. A flowchart of legal organization personnel-related activities was developed and helped the department conclude that a complete overhaul of the processes was required. A management task force was commissioned that developed a comprehensive professional performance system (Weise 1993–1996).

Marketing. Hurley (1994, p. 45) suggests that marketing organizations are often slow to embrace systematic quality efforts, due, in part, to a belief that marketing is already "doing quality" given its traditional focus on the external customer. However, there are many areas in which substantial progress is being made.

Hearing "the Voice of the Customer." Companies adept at systematic quality management place few barriers between the voice of the customer and all parts of their organization. This principle played an important role as Toyota Motor Sales USA constructed its marketing function. All quality information is kept in a central database accessible to all parts of the organization, and customized

reports and graphs from this database can be generated at workstations in all field locations. Data are collected through hundreds of thousands of contacts—surveys, telephone calls, etc.—with customers annually. The data are broken down by dealer and downloaded to each dealership to spur local corrective action in response to customer dissatisfaction. A customer satisfaction committee meets monthly to assess satisfaction levels, review plans to improve satisfaction, and communicate status and progress to top management. Based on these findings, senior management sets priorities and allocates resources to improve customer satisfaction (Hurley 1994, pp. 47–48).

Xerox USA surveys every customer after installation of one of its machines, conducts random telephone interviews with customers throughout the year, and benchmarks its service against its competitors on key dimensions every other year. Senior executives also are assigned to take customer complaint calls on a rotating basis (Hurley 1994, p. 48).

Solectron asks its customers to complete and fax back a weekly report card asking about the company's performance on the dimensions of product quality, on-time delivery, communication, service responsiveness, and overall company performance. Customers score the company on a letter-grade scale with a matching point score for each letter: A (100 points), A− (90), B (80), B− (75), C (0), and D (−100). The only acceptable score is a straight A. Solectron holds weekly early-morning meetings, open to all employees, at which the data are discussed, responsibility for investigating and remedying low scores is taken, and improvements are reported and shared (Stoner and Werner 1993, p. 98).

Defining Quality in Customers' Terms. Companies that explore their customers' needs in-depth often learn how to expand their definition of their own products and services to their competitive advantage. Federal Express learned to see its service as going beyond package delivery to include package tracking and sophisticated ordering and billing options. Texas Instruments Defense Systems and Electronics discovered that its customers want a total-value solution and not always the one that is most technologically elegant. Toyota USA realized that its customers are as interested in the quality of their purchase and service experiences as they are in the car itself (Hurley 1994, p. 49).

Marketing research in quality organizations helps define the relative importance to customers of various quality dimensions. For example, Xerox discovered that there were three segments to the market for copiers, each with a different definition of quality. Customers in the low-volume segment (<5000 copies per month) primarily wanted reliability. Customers in the high-volume segment (>100,000 copies per month) valued reliability but also wanted service features such as fast response time in the event of a breakdown (Hurley and Laitamaki 1995, p. 65).

Federal Express conducts surveys to compile its "Hierarchy of Horrors," a list of the service failures of most concern to its customers. These are weighted according to their importance as reported by the customers and are then used to create a daily service quality indicator (SQI), a measure of companywide service quality that is posted throughout the organization. Federal Express's goal is to drive the SQI toward zero by systematically eliminating failures in meeting customer expectations, with an emphasis on those failures most distressing to its customers. (Hurley 1994, p. 48; Stoner and Werner 1993, pp. 42–43).

AT&T conducts surveys to discover the relative importance to its customers of each of its business processes and their characteristics and then uses these data to prioritize its quality-improvement efforts (Hurley and Laitamaki 1995, p. 66). Texas Instruments, Toyota USA, and Xerox are among the companies that use forms of quality function deployment (see also Section 3) to align their goals and plans with customer needs (Hurley 1994, p. 49).

Nurturing Long-Term Customer Relationships. One change in marketing practice driven by systematic quality is a move away from "short-term conquest marketing, in which potential customers are reacquired each period, to a long-term approach that creates loyal buyers over the company's life span by consistently delivering quality and value to them." Federal Express identified its most profitable customers and organized around understanding and meeting their business needs. Globe Metallurgical creates cross-organizational teams composed of both customer and Globe staff to align its operations with its customers' strategic plans. Marriott's computer system tracks the preferences and purchases of its best customers so that employees can personalize their conversations with these customers and anticipate their requests, creating a stronger relationship (Hurley 1994, p. 46).

Improving Marketing Processes. Zytec Corporation redesigned its order process to reduce cycle time and cost when it discovered that it took longer for a salesperson to process an order than for the company to manufacture the product (Hurley 1994, p. 44).

After reducing the manufacturing cycle time for its pagers to well under 1 day, Motorola discovered that it had created an opportunity to redesign its order process. In the new process, a salesperson with a portable computer can take an order in the morning, transmit it by modem to the factory by midday, and promise delivery by air express by the next morning.

Competing via Quality. For some companies, having a well-functioning quality program is becoming necessary to compete successfully. Many companies, including Federal Express, Ford, and Xerox now expect, and sometimes demand, that their suppliers meet increasingly higher quality standards. These same companies report that their own, well-recognized quality programs provide greater access to potential customers by increasing their credibility (Hurley 1994, p. 47).

CONCLUSION

Systematic quality improvement in administrative and support operations historically has lagged behind quality improvement in production and operations activities. However, an increasing number of organizations are discovering that the opportunities for quality gains in administrative and support areas are often as great as opportunities elsewhere in the organization. Administrative and support functions are learning to use the same quality improvement tools in the same ways as other parts of the organization. The results are the same as well: increased quality, customer satisfaction, and revenues and decreased costs through defect reduction, cycle-time reduction, the development of new services, and the elimination of burdens placed on customers and suppliers. The beneficiaries of these quality improvements include both internal and external customers.

In implementing systematic quality management, administrative and support personnel find that both they and their departments undergo significant changes in roles and relationships with others. Perhaps the most fundamental change is from a traditional role of scorekeeper and corporate police to team member and facilitator.

The kinds of changes described in this section are likely to continue to evolve as organizations invent and discover new systems, structures, and relationships more and more consistent with a total quality culture. All organizational members should expect and plan for revolutionary rates of quality improvement throughout administrative and support operations, just as they should expect and plan for such improvements in the products and services they provide to their external customers.

REFERENCES

Alexander, M., and Young, D. (1996). "Strategic Outsourcing." *Long Range Planning,* vol. 29, no. 1, pp. 116–119.

Baker, Edward M., and Artinian, Harry L. (1985). "The Deming Philosophy of Continuing Improvement in a Service Organization: The Case of Windsor Export Supply." *Quality Progress,* June, pp. 61–69.

Blackburn, Richard, and Rosen, Benson (1993). "Total Quality and Human Resource Management: Lessons Learned from Baldrige Award–Winning Companies." *Academy of Management Executive,* vol. 7, no. 3, pp. 49–66.

Blackburn, Richard, and Rosen, Benson (1995). "Does HRM Walk the TQM Talk?" *HRMagazine,* vol. 40, no. 7, pp. 69–72.

Brenner, Lynn (1996). "Shareholder Targeting." *CFO,* February, pp. 57–61.

Cardy, Robert L., and Dobbins, Gregory H. (1996). "Human Resource Management in a Total Quality Organizational Environment: Shifting from a Traditional to a TQHRM Approach." *Journal of Quality Management,* vol. 1, no. 1, pp. 5–20.

Caudron, Shari (1993). "How HR Drives TQM," *Personnel Journal,* vol. 72, no. 4, pp. B48ff.

Champy, James (1995). *Re-engineering Management.* Harper Business, New York.

Cole, Robert E. (1994) "Reengineering the Corporation: A Review Essay." *Quality Management Journal,* vol 1, no. 4, July, pp. 77–85.

Davis, Robert, Rosegrant, Susan, and Watkins, Michael (1995). "Managing the Link Between Measurement and Compensation." *Quality Progress,* February, pp. 101–106.

DiPietro, R. A. (1993). "TQM: Evolution, Scope and Strategic Significance for Management Development." *Journal of Management Development,* vol. 12, no. 78, pp. 11–18.

Garvin, David A. (1991). "How the Baldrige Award Really Works." *Harvard Business Review,* November-December, pp. 80–95.

Glasser, Gerald J. (1995). "Quality Audits of Paperwork Operations—The First Step Toward Quality Control." *Journal of Quality Technology,* vol. 17, no. 2, pp. 100–107.

Greene, R. Michael (1995). "Intellectual Property Management in a Dynamic Organizational Context." *1995 Management for Quality Research and Development Symposium.* Juran Institute, Wilton, CT, pp. 4-29–4-38.

Gryna, Frank M. (1988). "Administrative and Support Operations," in Juran, J. M. (ed.). *Juran's Quality Control Handbook,* 4th ed. McGraw-Hill, New York, pp. 21.1–21.23.

Haddock, Cynthia Carter, et al. (1995). "The Impact of CQI on Human Resources Management." *Hospital and Health Services Administration,* vol. 40, no. 1, pp. 138–153.

Hall, Gene, Rosenthal, Jim, and Wade, Judy (1993). "How to Make Reengineering *Really* Work." *Harvard Business Review,* November-December, pp. 119–131.

Hammer, Michael (1990). "Reengineering Work: Don't Automate, Obliterate." *Harvard Business Review,* July-August, pp. 104–112.

Hammer, Michael, and Champy, James (1993). *Reengineering the Corporation.* Harper Business, New York.

Hammer, Michael, and Stanton, Steven A. (1995). *The Reengineering Handbook.* Harper Business, New York, pp. 14–33.

Harkins, Philip J., Brown, Stephen M., and Sullivan, Russell (1996). *Outsourcing and Human Resources: Trends, Models, and Guidelines.* LER Press, Lexington, MA.

Higgins, Brian K., and Dice, Christopher M. (1984). "Quantifying White Collar Functions." *National Productivity Review,* Summer, pp. 288–302.

Hodgetts, Richard M., Luthans, Fred, and Lee, Sang M. (1994). "New Paradigm Organizations: From Total Quality to Learning to World-Class." *Organizational Dynamics,* vol. 22, no. 3, pp. 5–19.

Hooyman, Judith A., and Harshbarger, Richard W. (1994). "Re-engineering the Billing and Collections Process." *IMPRO-94 Conference Proceedings.* Juran Institute, Wilton, CT, pp. 7A-3–7A-18.

Hurley, Robert F. (1994). "TQM and Marketing: How Marketing Operates in Quality Companies." *Quality Management Journal,* July, pp. 42–52.

Hurley, Robert F., and Laitamaki, Jukka M. (1995). "Total Quality Research: Integrating Markets and the Organization." *California Management Review,* vol. 38, no. 1, pp. 59–78.

Imai, Masaaki (1986). *KAIZEN: The Key to Japan's Competitive Success.* McGraw-Hill, New York.

International Paper Company (1985). "CTQ Flow Charting," in *Quality Management Concepts.* IPCO, New York.

Juran, J. M. (1988). *Juran on Planning for Quality.* Free Press, New York.

Juran, J. M. (1989). *Juran on Leadership for Quality: An Executive Handbook.* Free Press, New York.

Jurison, Jaak (1994). "The Role of Information Systems in Total Quality Management." *Knowledge and Policy,* vol. 7, no. 2, pp. 3–16.

Kahn, Paul G. (1995). "Pacing the Quality Race." *Credit World,* vol. 83, no. 5, pp. 24–26.

Keating, Patrick J., and Jablonsky, Stephen F. (1990). *Changing Roles of Financial Management—Getting Close to the Business.* Financial Executives Research Foundation, Morristown, NJ.

Kohn, Alfie (1994). *Punished by Rewards.* Houghton Mifflin, Boston.

Kordupleski, Raymond E., Rust, Roland T., and Zahorik, Anthony J. (1993). "Why Improving Quality Doesn't Improve Quality (Or Whatever Happened to Marketing?)." *California Management Review,* vol. 35, no. 3, pp. 82–95.

Lacity, Mary C., Willcocks, Leslie P., and Feeny, David F. (1996). "The Value of Selective IT Sourcing." *Sloan Management Review,* vol. 37, no. 3, pp. 13–25.

Latzko, William J. (1985). "Process Capability in Service and Administrative Operations." *ASQC Quality Congress Transactions.* Milwaukee, pp. 168–173.

Leonard, Joseph W. (1986) "Why MBO Fails So Often." *Training and Development Journal*, vol. 40, no. 6, June, pp. 38–39.Makosz, P. G., and McCuaig, B. W. (1990*a*). "Is Everything under Control? A New Approach to Corporate Governance." *Financial Executive*, January-February, pp. 24–29.

Makosz, P. G., and McCuaig, B. W. (1990b). "Internal Audit—Ripe for a Renaissance." *Internal Auditor,* December, pp. 43–49.

Mizuno, Shigeru (ed.) (1988). *Management for Quality Improvement: The 7 New QC Tools.* Productivity Press, Portland, OR.

Mooney, Marta (1986). "Process Management Technology." *National Productivity Review,* vol. 5, pp. 386–391.

Petrick, Joseph A., and Furr, Diana S. (1995). *Total Quality in Managing Human Resources.* St. Lucie Press, Delray Beach, FL.

Rauner, Vincent J. (1990). "Pursuing Quality in Patent Applications." *IMPRO-90 Conference Proceedings.* Juran Institute, Wilton, CT, pp. 2C-1–2C-9.

Redman, Tom, Mathews, Brian (1998). "Service Quality and Human Resources Management: A Review and Research Agenda." *Personnel Review,* vol. 27, no. 1.

Redman, Tom, Mathews, Brian, Wilkinson, Adrian, and Snape, Ed (1995). "Quality Management in Services: Is the Public Sector Keeping Pace?" *International Journal of Public Sector Management,* vol. 8, no. 7, pp. 21–34.

Rosenfeld, Manny (1990). "A Quality-Based Capital Decision Process." *IMPRO-90 Conference Proceedings.* Juran Institute, Wilton, CT, pp. 7D-24–7D-36.

Samborn, Hope Viner (1994). Total Quality Management." *Legal Assistant Today,* November-December, pp. 40–43.

Schonberger, Richard J. (1996). *World Class Manufacturing: The Next Decade.* Free Press, New York.

Sharman, G. K. (1995). "Breaking Through in the Finance Function." *The Total Quality Review,* March-April, pp. 29–33.

Stoner, James A. F., and Wankel, Charles B. (1990). "World Class Managing: Two Pages at a Time," Book I. Graduate School of Business, Fordham University, New York, unpublished manuscript.

Stoner, James A. F., and Wankel, Charles B. (1991). "Teaching the New Global Management Paradigm: Five Years' Experience." *Academy of Management Best Papers Proceedings.* Miami Beach, pp. 126–130.

Stoner, James A. F., and Werner, Frank M. (1992*a*). *Remaking Corporate Finance—The New Corporate Finance Emerging in High-Quality Companies.* McGraw-Hill, New York.

Stoner, James A. F., and Werner, Frank M. (1992*b*). "Changing Roles of Finance: Strategies for Bringing Finance into Quality Management." CFRI Conference, Financial Executives Institute, New York, November 16.

Stoner, James A. F., and Werner, Frank M. (1993). *Finance in the Quality Revolution—Adding Value by Integrating Financial and Total Quality Management.* Financial Executives Research Foundation, Morristown, NJ.

Stoner, James A. F., and Werner, Frank M. (1994). *Managing Finance for Quality: Bottom-Line Results from Top-Level Commitment.* ASQC Quality Press, Milwaukee, WI, and Financial Executives Research Foundation, Morristown, NJ.

Stoner, James A. F., and Werner, Frank M. (1995). *Internal Audit and Innovation.* Financial Executives Research Foundation, Morristown, NJ.

Stoner, James A. F., et al. (1993). "The Quality Revolution in Legal Practice: Removing the Oxymoron from 'Legal Service.'" Graduate School of Business, Fordham University, New York, unpublished manuscript.

Sullivan, L. P. (1986). "The Seven Stages in Company-Wide Quality Control." *Quality Progress,* May, pp. 77–83.

Weise, Richard H. (1991–1996). *Representing the Corporate Client: Designs for Quality,* vols. I, II, III, and periodic supplements. Prentice-Hall Law and Business and Aspen Law and Business, Aspen Publishers, Englewood Cliffs, NJ.

Wilkinson, Adrian, Marchington, Mick, and Dale, Barrie (1993). "Enhancing the Contribution of the Human Resource Function to Quality Improvement." *Quality Management Journal,* October, pp. 35–46.

Wilsinson, A., Redman, T., Snape, E., and Marchington, M. (1998). *Managing with Total Quality Management.* Macmillan, New York.

[1]In the Fourth Edition, material for the section on administrative and support operations was supplied by Frank M. Gryna.