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FEDERAL QUALITY MANAGEMENT:

Strategies for Involving Employees

GAO

United States
General Accounting Office
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General Government Division

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The Honorable James B. King
Director, Office of Personnel
   Management

Dear Mr. King:

Quality Management (QM)—a management approach that emphasizes improving product quality while decreasing production costs by increasing the efficiency of work processes—has gained significant popularity in the federal government. Approximately 68 percent of the 2,200 federal organizations responding to our June 1992 survey on QM reported that they were in various phases of QM implementation. However, the same survey indicated that actual employee involvement was limited; on average, only 13 percent of employees at these organizations were actively involved in such QM-related activities as facilitation, councils, teams, and teaching.[1] Survey respondents identified problems related to human resource management (HRM) as being among the major barriers to implementing QM—which, if it is to be successful, requires employee participation.

This report describes the HRM approaches used to implement QM by 10 federal organizations that have won governmental awards for the advanced level of their quality initiatives. We believe that the results of this examination should be useful to the Office of Personnel Management (OPM) as the agency with primary responsibility for assisting federal agencies with QM through its Federal Quality Institute (FQI).

Results

We learned through our visits to award-winning organizations and discussions with their top managers that the process of changing to a quality management organization was driven by the synergism that results from using the four HRM strategies outlined below. By using these strategies, which overlap and support one another, the organizations we visited reported increased levels of employee involvement in quality improvement activities. The four strategies are:

Training

As part of their efforts to implement QM, the 10 organizations spent significantly more money on training than they had before they moved to a QM environment. In addition, 5 of the 10 organizations had data to show that they spent over 2.5 percent of their payroll dollars on training,

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[1]Quality Management: Survey of Federal Organizations (GAO/GGD-93-9BR, Oct. 1, 1992).

compared to the governmentwide average of 0.75 percent reported by the 1989 Volcker Commission on Public Service. Seven of the 10 organizations we visited used a "cascading" approach to provide training, whereby each level of the organization was responsible for training the level below it on the organizational chart. All 10 organizations used in-house trainers at least part of the time. As benefits of this in-house approach, the officials we spoke to generally mentioned one or more of the "3 Cs", i.e., <u>cost</u> (this approach is cheaper than paying consultants to do all of the training); <u>customization</u> (unlike the more generic approach of most consultants, in-house training can be tailored to the organization's specific mission, goals, and needs); and <u>credibility</u> (top managers told us that having managers do the training sends the message to employees that top management is committed to the QM principles and tools that are being taught).

Communications

Direct and regular face-to-face contact between top managers and workers on the shop floor was a hallmark of the broadened and deepened communications approach, according to officials at most of the organizations. At the Naval Aviation Depot in Cherry Point, NC, officials told us that the decision to increase contact between management and employees stemmed from the former's realization that a huge untapped knowledge base existed at the floor level—the workforce—and that the people who perform the work often have the best ideas on how to make improvements. At some organizations, interaction between management and employees took the form of "town meetings" at which both groups could openly discuss issues focusing on quality and productivity. At some other organizations, top managers made informal visits to work areas to solicit ideas on improving processes from employees. In addition to this "bottom-up" approach, the 10 organizations also worked to open dialogues between different functional areas (i.e., horizontal communication) as a means of identifying problems and improving processes. They did this by (1) establishing cross-functional teams to look at problems that cut across functional lines and (2) using "internal customer surveys" that helped to increase functional areas' awareness of how they could serve their internal customers more effectively and efficiently.

Teams

The 10 organizations we visited focused on developing teamwork. All organizations started with problem-solving teams created to address a single issue and eventually expanded to include cross-functional teams. Currently, four organizations have developed self-managed teams, which

are formed along process lines and assume managerial responsibilities once assigned only to supervisors. For example, self-managed teams at the Naval Aviation Depot in Cherry Point were responsible for checking incoming work, distributing work among employees, and ordering supplies. Two other organizations are moving towards developing self-managed teams.

Empowerment

All 10 organizations empowered their employees to take active steps to identify and improve processes that hindered product quality or customer service. At one installation, empowerment took the form of employees stopping work without consulting a manager when they encountered problems and taking the necessary steps to identify and correct the problem. At other installations, empowerment took the form of employees widening the scope of their work responsibilities, largely through the use of the team concept discussed previously. At the Internal Revenue Service's Ogden, Utah, Service Center, for example, employees in the unit responsible for handling—but not responding to—correspondence from taxpayers and tax practitioners formed a team that recommended that employees be empowered to deal directly with customers. Now, employees answer and sign correspondence using a new letter format they developed. They also have the authority to expand upon the information provided in the letters when they are contacted by taxpayers. They also do needed follow-up work on taxpayer cases. This new "customer-friendly" approach was a direct result of employee input and has received positive feedback from both taxpayers and tax practitioners.

Finally, individuals at all levels of the 10 quality organizations—from the shop floor to top management—stressed the critical importance of their top managers' involvement in the QM implementation process. These individuals emphasized that QM would likely not have succeeded without the active participation and support of their top managers in using the four HRM strategies. A graphic example of top management commitment was provided at the Naval Aviation Depot in Cherry Point, where top management empowered artisans to stamp their work to indicate that it was ready to use without undergoing a detailed inspection. When the first aircraft was completed under the artisan certification concept, the facility's commanding officer simply asked the artisans if the aircraft was ready and whether they were confident that the traditional inspection process was unnecessary. When they answered yes, the commander appeared in his flight suit and personally flew the test flight.

For a detailed discussion of the four strategies, see appendix I.

Objective, Scope, and Methodology

The objective of this assignment was to identify the HRM approaches used to implement QM at federal organizations that have been recognized for their QM efforts.

To develop our methodology, we interviewed experts on QM, conducted a comprehensive review of QM literature, and reviewed prior GAO work that addressed QM issues. As a result of this effort, we selected 10 organizations, both civilian and within the Department of Defense, that (1) had won governmental awards recognizing them for quality and (2) had either identified themselves in our earlier survey as achieving results and institutionalizing QM or had been recommended by experts. These organizations are listed in the detailed description of our scope and methodology in appendix II.

To identify the HRM approaches used by these organizations, we (1) reviewed documents provided by the organizations, such as quality award applications and the results of employee and customer surveys; and (2) interviewed more than 300 managers and employees, including union officials, about their organizations' HRM approaches to implementing QM and the lessons they learned during their efforts to adopt QM.

We did our field work between September 1993 and August 1994 in accordance with generally accepted government auditing standards.

Agency Comments

We met with QM officers and other responsible management officials from the National Technical Information Service, Department of Commerce; Aviation Supply Office, Department of the Navy; Veterans Affairs Regional Office and Insurance Center, Department of Veterans Affairs; Naval Air Warfare Center, Aircraft Division, Department of the Navy; Aeronautical Systems Division, Department of the Air Force; and the Cincinnati and Ogden Service Centers, Internal Revenue Service, on July 6, 1994, to discuss a draft of this report. Those officials generally agreed with the thrust of our message regarding use of the four human resource approaches. They did not identify any significant problems with the report message as we had outlined it. They agreed that we had identified human resource approaches common to all of their organizations. The officials also emphasized that implementing QM required a strong commitment from

top leadership and the importance of empowering employees. Wherever possible, we included the information they provided in the report.

Subsequently, the quality coordinators from the three organizations that did not attend the July 6, 1994, conference (Arnold Engineering Development Center, Defense Contract Management District, and the Naval Aviation Depot) reviewed and agreed with the key findings of this report.

We are sending copies of this report to the Chairman, Senate Governmental Affairs Committee; the Chairman, House Governmental Reform and Oversight Committee; and the Project Director, National Performance Review. Copies also will be made available to other interested parties on request.

If you have any questions, please call me on 202-512-5074. The major contributors to this report are listed in appendix III.

Sincerely yours,

Timothy P. Bowling
Associate Director
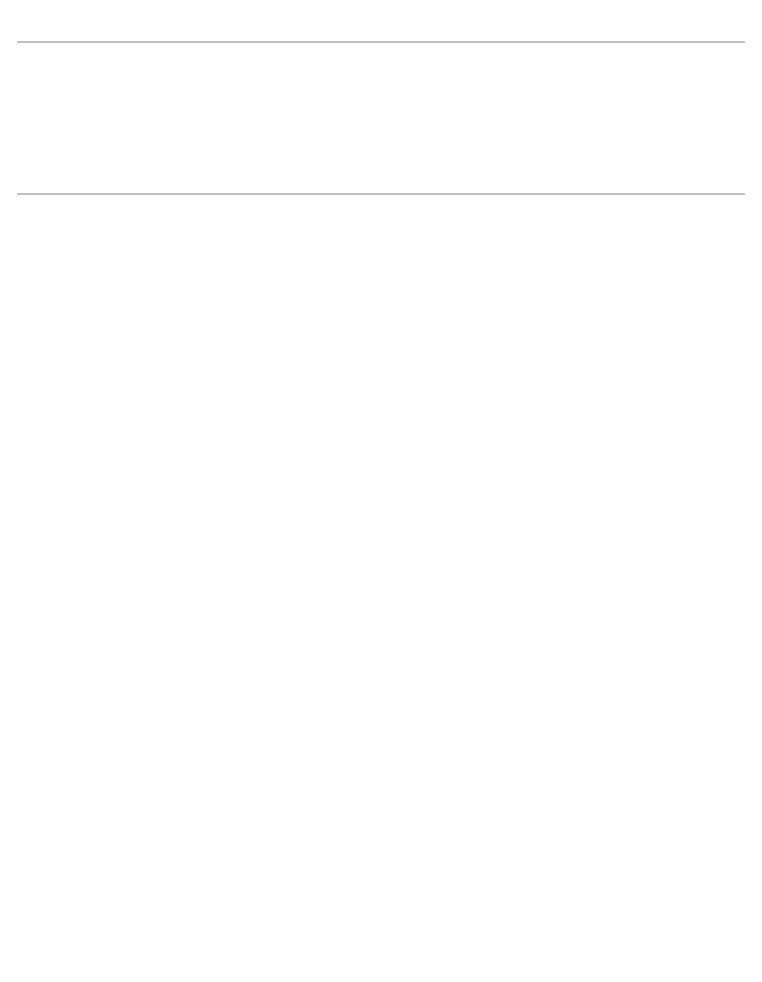Federal Human Resource Management
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Abbreviations

ASD	Aeronautical Systems Division
CAPRS	Computer Assisted Pipeline Review System
CSC	Cincinnati Service Center
FQI	Federal Quality Institute
HRM	human resource management
IRS	Internal Revenue Service
JQC	Joint Quality Council
JQIP	Joint Quality Improvement
OPM	Office of Personnel Management
OSC	Ogden Service Center
QASS	Quality Analysis and Support Staff
QIP	quality improvement team
QM	Quality Management
SFA	Survey Feedback Action

The HRM Approaches Used to Implement QM in Award-Winning Organizations

Although no 2 of the QM programs we looked at were exactly the same, all 10 of the award-winning organizations embraced the same 4 general HRM strategies to involve their employees more effectively in the effort to improve quality and better meet customer needs. These strategies were:

- implementing a comprehensive program to train employees in QM concepts, problem-solving techniques, and other skills they will need to meet the organization's strategic plan for the future;
- increasing communication within the organization;
- promoting, supporting, and rewarding teamwork; and
- empowering employees by involving them in efforts to satisfy customer needs and share in managing work processes.

Within each of the four strategies, we identified several approaches used by the organizations to implement their HRM strategies. The majority of the organizations we visited said they used most of these approaches; some used all of them.

The HRM strategies the organizations used to implement QM overlapped and supported each other. We discovered through our visits to quality organizations and discussions with employees at all levels that the process of changing to a quality culture was driven by the synergism that resulted from using the four HRM strategies concurrently. In doing so, these organizations increased the levels of employee involvement in quality improvement activities.

In our 1992 survey, the seven responding award-winning organizations reported that about 34 percent of their employees were involved in QM activities.[1] In 1994, all 10 award-winners reported about 50 percent employee involvement on average.

We also learned that top managers provided more than tacit approval of these strategies—they were actively involved in their implementation and visibly committed to making them a success. Repeatedly during our visits, employees, managers, and union officials spoke of their top managers as the driving forces behind their QM initiatives.

Provide Training

The top managers at the quality organizations we visited were often instrumental in introducing, and subsequently championing, QM at their

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[1]In our 1992 survey, organizations that had been implementing QM for the same length of time as the 10 award-winning organizations we selected for this report reported 22-percent involvement on average.

organizations. They learned about QM through their reading, attendance at QM seminars, or visits to organizations that had implemented QM. We heard many stories of how a top manager, upon returning from a major learning experience, enthusiastically went about introducing QM to the workforce. The top managers personally directed their organizations' initial QM efforts through existing structures (e.g., human resource development offices) or newly created structures (e.g., quality coordinators' offices) to provide training to employees in QM concepts and tools and to upgrade their skills.

Since they started implementing QM, at least five of the organizations we visited have spent more time and money, as a percent of payroll, on employee training than other federal government agencies. Although the others could not provide detailed training costs, their emphasis on training, on both QM and other skills, was a top priority. According to the 1989 report of the National Commission on the Public Service (the Volcker Commission), the government spent approximately 0.75 percent of its payroll dollars for civilian training. Although we were unable to obtain comparable cost data for all of the organizations we visited, five organizations reported that they spent at least 2.5 percent of their payroll dollars on training (QM and other).

The approaches used by quality organizations to provide training included the following:

- Management established a comprehensive quality training program. The 10 organizations we visited established comprehensive training programs designed to introduce the entire workforce to basic QM tools and concepts. At the organizations we visited, this training generally lasted anywhere from 2 hours to 2 days, and in some cases the training lasted longer. In addition to introductory training, the organizations provided training on internal customer/vendor relationships, analytic trouble shooting, statistical process control, project team facilitator training, and other QM-related issues. Following initial training, most conducted self-assessments that enabled them to identify—and correct—shortcomings in the initial training. Finally, the organizations often included training to teach employees those skills the organization will require in the future.
- Management developed in-house QM training capabilities. Faced with the high cost of using consultants—and concerned that the training offered by outsiders was too generic—the organizations we visited generally established a training branch or quality office to provide QM training using managers and in-house instructors and developed training materials

tailored to their specific missions, goals, and needs. Seven of the 10 organizations used a cascading training approach, whereby each level of the organization was responsible for training the level below it on the organizational chart. Top and middle managers were generally required to attend additional training courses to help them assume their new roles as "coaches." The organizations we visited found that the use of in-house teachers and materials lent credibility to the QM program; officials said having managers do the training sent a clear message to the workforce that management was both familiar with and committed to making QM a success.

The "3 Cs" of In-House Training

When asked to provide a rationale for developing in-house training capabilities rather than exclusively using consultants, the officials we spoke to generally cited one or more of the "3 Cs":

Cost: Effectively implementing QM entails training many employees over a long period of time. Officials at many installations told us they opted for in-house training because of the greater cost of relying on consultants to conduct long-term training.

Customization: Officials at some of the installations felt that the training offered by consultants was too generic. In-house training materials can be tailored to meet an organization's specific mission, goals, and needs.

Credibility: Officials explained that in their view, the use of in-house training added credibility to an installation's QM program. Having managers do the training sent a message to employees that management was both familiar with and committed to the QM principles and tools that were being taught.

- Management integrated quality training into the corporate HRM development strategy. The organizations we visited integrated their teaching of quality tools and concepts into their overall strategies for upgrading employees' skills. This served to underscore the importance placed on quality training by the organization. Methods the organizations used included skills assessments/inventories, individual development plans, a "template" approach to training (see case study 1), and cooperative arrangements with local schools to provide training resulting in academic degrees and/or certification.

• Management provided continuing training. The organizations we visited followed up their initial quality training efforts by providing additional quality and related courses on a just-in-time basis, which emphasizes narrowing the time between the teaching of a new skill and its use in the workplace, thus reinforcing training and increasing its effectiveness.

We believe the training strategy used by the 10 quality organizations we visited supported the other HRM strategies used to implement QM. QM training emphasized the importance of increased communication between managers and employees and among employees across functional lines. Training in QM also helped to foster a teamwork culture by teaching employees to work together effectively as they use team-oriented tools, such as brainstorming, and by teaching them about the need to improve processes to better serve internal customers. Finally, training supported employee empowerment. At the organizations we visited, training included teaching middle managers and employees about empowerment. Organizations conducted joint management/employee training classes where empowerment was discussed, and they were developing empowerment training classes.

Case Study 1: Providing Training

Declaring that Quality Management "does not occur without an investment," the Aeronautical Systems Division (ASD) at Wright-Patterson Air Force Base near Dayton, Ohio, began its own QM effort by investing heavily in the people who must drive any quality improvement effort: its employees. As of 1992, ASD had spent more than $4 million in QM training during the previous 3 years, and about 13,000 employees had received training.

Determined that "alternatives to expensive contractor training should be considered," ASD opted to use in-house instructors to train its workforce. An ASD quality official acknowledged that ASD used several alternative training approaches before settling on the in-house approach. The base's medical center cascaded training. Otherwise, a dedicated training staff conducted training.

According to an instructor-developer at Wright-Patterson's Page Manor campus—which serves as the focal point for HRM training at the base—ASD's in-house approach offers several advantages over the use of contractors. Courses can be customized to fit particular occupations, and in-house training is also less expensive. However, development of an in-house course can sometimes take a year or longer. He said that under

such circumstances it might sometimes make sense to use an outside contractor while the in-house course is being developed. Although the contractor's course may contain subject matter that is not specifically relevant, it would provide a core of useful information for trainees.

All employees were required to complete a 2-day QM awareness course offered at the Page Manor campus. Executives and managers at the base also attended workshops designed to show them how to promptly apply the principles and skills learned in the QM courses.

ASD has continued to rely on in-house resources to provide QM training. ASD's Total Quality Office includes a group of facilitators who act as coaches, advisors, teachers, and champions of the process of continuous improvement. As teachers, they instruct employees in such subjects as developing and implementing key metrics/key indicators and effective team building. As advisors, they do such things as coaching leadership on how to act as facilitators. Additionally, the facilitators conduct customer surveys.

ASD has added a "quality overlay" to its training templates, which are customized training curriculums that (1) define the knowledge, skills, and abilities needed to perform particular occupations; and (2) incorporate all of the training courses needed to gain the skills. Use of the quality overlay ensures that all workers receive a solid grounding in quality tools and concepts. Furthermore, the templates link individuals' training to the corporate strategic plan.

ASD developed its training templates in the early 1990s in response to two serious accidents involving B-52 and B-1B aircraft. According to one ASD official, top management recognized a "broken process that needed fixing" after an investigation identified poor training as a contributing factor in the accidents. According to an ASD official, the effectiveness of the templates derives in part from their development by individuals "who actually do the work in an occupation."

According to managers, the use of training templates offers several advantages over the base's previous training approach. One noted that the template approach ensures a quicker buy-in from employees and supervisors, who recognize that the courses offered are necessary to helping them perform their jobs. Another noted that under the base's previous training approach, "employees and supervisors thumbed through training catalogues, and then picked out courses, and provided

justifications for their selections." The courses chosen were often not linked to any overall training plan; they represented items on a 'wish list' rather than requirements that were needed to perform a specific job.

Officials told us that training requests often lacked credibility, and in the eyes of management the entire concept of training became suspect. With training templates, however, the need to offer a specific course can be easily justified, and management has responded by increasing funding for employee training. For example, in 1994 the Page Manor campus sought and obtained an additional $800,000 in employee training funds. While acknowledging that other factors may have contributed to the increase, an ASD official told us that the templates allowed officials requesting training funds to justify and document training needs in a way that external officials could see and understand. According to this official, training requests are approved and have a credibility they did not have before.

ASD uses the just-in-time training philosophy: providing training to problem-solving team members or others just before they need to use it, thus ensuring that the skills learned are quickly put to use and training is reinforced. Specifically, ASD's Page Manor campus offers a 16- to 32-hour just-in-time course for teams chartered to improve a specific process or product cycle, with training being tailored to meet the team's specific needs. The training combines lectures with tasks geared to the process or product cycle that the team has been formed to improve. ASD facilitators also play a key role in reinforcing training by teaching refresher courses.

Increase Communication

QM stresses the need to revolutionize the way people communicate within an organization. In traditional organizations, communication is hierarchical; information is communicated from top to bottom, from management to employees. In the organizations we visited, officials told us that new channels of communication had been opened and existing channels broadened to make possible the increased exchange of information from managers to newly empowered employees, from employees to management, and between different functional departments (i.e., internal customers). Additionally, employees were provided with business information that had normally been communicated only to managers. The approaches quality organizations used to increase communication included the following:

- Top management developed and encouraged multidirectional communication to promote QM and support increased communication

among employees. The 10 organizations we visited strengthened bottom-up communication, which stresses the importance of soliciting the expertise and knowledge of workers "on the floor" through, for example, suggestion programs, "town meetings," or managers' informal visits to work areas ("management by walking around"). An official at the Naval Aviation Depot in Cherry Point, NC, told us that the decision to increase employee-management interaction stemmed from management's realization that "a huge untapped knowledge base exists at the floor level—the workforce. The people who perform the work often have the best ideas on how to make improvements." Another example of bottom-up communication was the employee survey, which several installations had begun to use to (1) increase functional areas' awareness of how they could better serve their internal customers and (2) assess the progress of QM. Typically, the first survey established a baseline for internal conditions, while later surveys allowed management to monitor improvements. Management then communicated the survey results to employees, thus closing the information loop.

Management also sought to increase horizontal communication, which stresses the opening of dialogues between different functional units, many of which, although they are in "customer/provider" relationships, traditionally have not communicated well with one another.

- Management increased the amount of business information available to employees. All of the organizations we visited viewed this approach as an important step towards employee empowerment. The organizations increased the flow of business information to their employees to enable them to assume their new roles as problem solvers and decisionmakers. Various installations provided customer data directly to their employees or displayed performance data in work areas. This emphasis on providing business information to employees was extended to internal customers as well. In some organizations, different functional areas routinely exchanged performance and problem-related information, thus giving the areas the means to improve service to their internal customers.

The communications strategies used by the organizations we visited supported their other HRM strategies. In their experience, officials at these organizations said that teamwork was enhanced by information sharing, which helped employees in the entire organization understand the need to work together to produce their products and services. Further, because employees had greater control over work processes and increased decisionmaking, they needed more business/process information made

available to them to base decisions on; thus, enhanced communication was a prerequisite of empowerment. Increased information flow between management and employees was also a critical prerequisite for building the trust needed to promote employee empowerment.

Case Study 2: Increasing Communication

At the Internal Revenue Service's (IRS) Cincinnati Service Center (CSC), a major focus of the quality effort has been on improving communication between all levels and departments of the organization. For example, top management has worked hard to increase "bottom-up" communications, i.e., communications from employees to management. Such communications have a two-fold purpose; they help to empower employees as well as increase the amount of information available to top management. The center director told us that "to get around resistance to change, we talk a lot."

For example, the center's former director began to hold "town meetings" designed to put top management into a position to elicit feedback and respond to a large audience of "internal customers" (i.e., center employees). One manager told us about "employees feeling more free to speak out at 'town meetings' on a range of different issues." The former director also "managed by walking around" and held regular informal brown bag lunches during which he would share information with anyone who wanted to talk to him about the business of the center.

The current director has continued and expanded these practices. For example, he comes to talk to the night shift. In addition, he contributes a column to the employee newsletter in which he responds to employees' questions and concerns. He also plans to establish a Director's Bulletin Board in each branch on which IRS business information can be posted.

Another method of bottom-up communication is the Survey Feedback Action (SFA) initiated by IRS headquarters and tabulated by outside consultants. The SFA provides managers with feedback based on their subordinates' perceptions of how well they communicate, share information about job management practices, and provide customer service. Managers and their employees meet to discuss the results of this survey; facilitators are also available for these meetings. According to CSC's Chief of Quality Analysis and Support Staff (QASS), such meetings support and encourage honest two-way communication.

At CSC, efforts to improve horizonal communications between different divisions actually predate QM, having been initiated over a decade ago. According to CSC personnel, however, QM implementation has complemented and furthered the center's efforts to increase horizontal communications.

Communications efforts continue on a regular basis. During filing season, two Processing Division branches hold weekly cross-functional meetings to ensure that tax examiners who code and edit information on tax returns for data entry are performing to quality standards. When transcribed data from tax returns showed high error rates, for example, first-line managers formed a cross-functional quality team to determine the cause. The team then alerted managers to take corrective actions ranging from increasing on-the-job training to closer monitoring.

Diagonal communication, i.e., bypassing the chain of command to communicate directly across functional lines with employees, also predates the center's QM effort and is complemented by QM. Center employees are encouraged not to worry about the chain of command and to talk directly to whoever can help them to correct a specific problem. This approach was especially encouraged after 1985, when returns were processed very slowly because of computer problems and some returns were discarded by IRS employees under pressure to meet production schedules.

IRS management officials said they learned a very important QM-related lesson from this experience: employees have to be given a broader perspective on their own work. Officials learned that it is not enough to tell a worker only what he or she needs to know to do a particular job. Employees also need to know how what they do affects the entire process and know the importance of looking for ways to improve the process.

CSC officials told us they planned to increase communication between internal customers through the establishment of a formal process of expectations-setting by internal providers and customers. Under the process, all managers will be required to identify and meet with internal customers to set written expectations. Customer satisfaction will then be measured to gauge the effectiveness of each area. This information will be published in the center newsletter and posted on the center's Quality Bulletin Boards.

CSC also provides its employees with business information. According to the center's QASS Chief, information is posted in several CSC work areas. Some areas use control charts, others use graphs. Within the Receipt and Control Branch, for example, information on the amount of dollar deposits and the length of time required from receipt of monies until deposit is posted and shared with employees.

According to officials, employees are also provided with reports generated by the Computer Assisted Pipeline Review System (CAPRS). These reports—which use data provided by employees who process tax returns—identify the kinds of problems that tax filers encounter in filling out their returns. The CAPRS reports are discussed by groups of employees who are empowered to take whatever actions are necessary to solve these problems. Although these employees are not members of formal problem-solving teams, they can recommend that such a team be established.

IRS guidelines for future quality implementation efforts within IRS call for increasing employee involvement through information sharing. Managers will be expected to provide employees with data about how well they are performing their parts of the process. For example, the guidelines say employees should be involved in determining process and performance measurements and in gathering and analyzing data. Employees must know the process measurements being used and have access to data regarding process performance.

Promote Team Culture

The organizations we visited emphasized that adopting a team culture was central to their successful implementation of QM. We found these organizations used two types of teams: problem-solving teams, which are formed to recommend ways to improve specific processes; and self-directed teams and natural work groups, which are formed along process lines and empowered to make process improvements with only limited managerial oversight as well as to make many of the day-to-day decisions formerly made by supervisors.

The approaches the 10 quality organizations used to promote team culture included the following:

- Management emphasized the teamwork concept through awards and recognition programs. The perception that personnel regulations restricted the formation and recognition of teams was one of the major

barriers to QM cited by organizations in our 1992 survey. Managers at the organizations we visited told us they initially perceived the regulatory requirement to appraise individual performance as also prohibiting appraising (and recognizing) group performance. However, they learned that they were able to work within existing personnel regulations to reward and recognize team contributions to quality. Focusing rewards solely on individual contributions to the collective effort leads to the suboptimal use of the organization's human resources. Group awards, on the other hand, acknowledge that work is done by groups and that group cooperation and performance should be recognized. Some organizations underscored their commitment to the team concept by earmarking a portion of their annual award monies for group accomplishments; giving mementos and keepsakes to team members; or simply recognizing team contributions to quality in awards ceremonies, newsletters, bulletin boards, or, in one case, over the public address system. One facility signalled its commitment to the team concept by establishing a facilitywide productivity gain-sharing program (see case study 3).

- Management dedicated resources to train and support teams. The organizations we visited stressed that it is not enough to simply form teams; it is also necessary to support them. Many set aside meeting rooms solely for teams; one organization built two meeting rooms—or Quality Rooms, as they were called—and stocked them with quality-related posters and information, electronic blackboards, and other office automation equipment. The organizations also provided various levels of team-specific training and just-in-time training as a means of supporting QM teams and increasing their effectiveness.

The teamwork strategy used by quality organizations supported their other HRM strategies. Through implementation of their teamwork strategies, organizations increased communication within and across functional lines by encouraging teams to talk directly with internal customers and units that affected their work processes. Teams also empowered employees, giving them a greater say in how work was done.

Case Study 3: Promoting Team Culture

The Naval Aviation Depot at Cherry Point, NC, is an example of an award-winning quality organization that uses a wide variety of approaches to implement its teamwork strategy.

Team recognition and rewards, as tools to motivate a change to a team culture, take two forms at Cherry Point. One form is the use of depotwide awards. For example, the depot instituted the first activitywide

productivity gain-sharing program in the federal government.[2] (Other installations have since begun similar programs.) The program provides monetary rewards to all qualified civilian employees when the depot exceeds the productivity levels based on improvement over a historical baseline. To ensure that employees understand the team concept and how their efforts translate into awards, the depot provided training to all employees on gain-sharing.

Similarly, the depot's total line item that was budgeted for quality step increases and achievement awards is shared equally by all civilian employees whose performance under the performance appraisal review system is deemed satisfactory.

In a letter to Cherry Point employees announcing the 1993 depotwide award of $150 per person, management lauded employees for their efforts to save money through energy conservation, recycling, reduction of hazardous waste, and meeting the Clean Air Act's standards. Union officials told us that they were very supportive of the depotwide awards; they stated that the awards enhanced employees' feelings of being appreciated by management, even when the total dollar amount being shared was small.

The second form of team rewards is for individual groups within the depot. According to the Incentive Awards Administrator, since adopting QM Cherry Point has been attempting to stress team efforts through performance awards. Special Achievement Awards are given on a group basis. These include "On-the-Spot" awards, which give management a way to provide immediate reinforcement for exceptional performance, as well as "Time-Off" awards. In September 1993, for example, the depot awarded Time-Off awards to the eight-person team that assisted in the removal and subsequent reinstallation of two large motors and a generator at the depot. The job was done right the first time and completed ahead of schedule. Team members were each awarded 8 hours of leave in recognition of their long hours and teamwork. The administrator pointed out that an examination of personnel regulations showed that they do not bar team recognition.

Training to support teams is provided by the depot's Quality Office, which provides just-in-time training to members of newly chartered

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[2]Productivity gain-sharing is an incentive award directly linked to group productivity above a previously established work measurement baseline.

problem-solving teams and other resources, such as facilitators, to support team activities.

As support to both problem-solving teams and self-managed teams, the Quality Office teaches the statistical tools required to examine and track process performance. According to the Chief of the Quality Management Group, all employees will receive training in statistical process tools.

The depot chartered self-managed teams in March 1991 as a way to move decision-making to the lower levels. The self-managed teams are organized around a work process and are involved, on a routine basis, in decisionmaking, goal-setting, scheduling, planning, and problem-solving. Cherry Point officials told us that in addition to facilitating employee empowerment, the use of self-managed teams also reduces layers of supervision and consolidates functions—both of which are key goals of the depot's downsizing strategy.

For example, the depot's "Plating Excellence for Product Performance" effort utilizes self-managed teams formed along process lines and empowered to make decisions formerly made by first-line supervisors. Such decisions include checking incoming work, distributing work among employees, and ordering supplies. While visiting the plating area, we saw an employee stop to measure a part being worked on and record it on a nearby check sheet. He explained that the data were used to track the quality process. He said that he was personally responsible for entering the data into a computer program that created statistical process control charts, which enabled the self-managed team to operate with lower levels of outside inspection.

According to depot officials, this team approach has led to increased employee pride in and ownership of the process, significant quality improvements, increases in productivity, reductions in overtime, and improved customer relations.

Finally, Cherry Point actively encourages participation on teams. Its chief means of encouraging employees to join teams is its team recognition and rewards system, which provides incentives to collective efforts, such as the plating project described earlier.

Encourage Employee Empowerment

The top managers, employees, and union officials at the 10 quality organizations we visited agreed that employees should be empowered to

provide better customer service. In general, employee empowerment emphasizes the importance of giving employees both the ability and the responsibility to take active steps to identify problems in the working environment that affect quality or customer service and to deal effectively with them.

The approaches quality organizations used to encourage and support employee empowerment included the following:

- Management established organizational structures that supported empowerment. The organizations we visited created interlocking QM structures to facilitate quality implementation and involve every level of the organization. Generally, these structures were topped by a Quality Council chaired by the top manager and made up of managers from the next level down, who in turn chaired Quality Councils at their level made up of managers from the next level down. This interlocking structure extended down through the organization so that managers at every level were "plugged-in." This structure provided the mechanism through which problem-solving teams were empowered. The councils chartered, directed, and supported problem-solving teams and provided the resources to implement their recommendations.
- Top managers modeled behavior supportive of empowering employees. At the organizations we visited, top managers modeled the participatory management style they wanted other managers throughout the organization to duplicate. This included soliciting employees' input on improving operations (e.g., through sponsoring employee suggestion programs, conducting brainstorming sessions with employees, managing by walking around) and encouraging middle managers to discuss operational issues with their employees on a frequent basis.
- Teams were used to empower employees. The organizations we visited used teams as the basic building block for empowering their workers. They started by establishing problem-solving teams—which are short-term in nature and formed to address a single issue—as the principal means of employee empowerment. Although such teams can recommend work process improvements, they cannot implement them without management approval. As both employees and managers gained confidence in employees' abilities to identify problems and develop solutions, some organizations increased their empowerment by establishing natural work groups and self-managed teams. These longer term function-based teams were empowered by management to make both (1) ongoing changes to improve work processes without first seeking the approval of a supervisor and (2) supervisory level decisions on work planning and staff utilization.

- Local union representatives were involved in the QM process. Some of the organizations we visited included union representatives on Quality Councils and as co-teachers of quality classes. At some organizations, union involvement took the form of formal cooperative partnership arrangements that empowered union representatives to work as full partners alongside management to implement QM. Managers and union representatives told us that these joint QM efforts to improve training, communication, and teamwork increased cooperation and trust between management and labor. Officials in QM organizations that have fostered cooperative relationships with their unions believe that their close union ties will facilitate the transition to the formal labor-management partnerships mandated by President Clinton's Executive Order 12871.

Case Study 4: Encouraging Employee Empowerment

At the IRS Ogden Service Center (OSC), employees, union officials, and management agreed; when they initiated QM, employee empowerment was nil. They told us that when the center began to implement QM in 1986 and 1987, empowering employees was not part of the culture at OSC. Indeed, some managers believed that empowering employees would adversely affect the processing of tax returns. However, during 1990 OSC's error rate (a measure of quality) on data entry of a Form 1040 was the lowest in the nation.

Although the individuals we interviewed described the change as slow and not yet to the level of some private sector organizations, employee empowerment at OSC is now such that some employees have the authority to independently stop ("red button") a process when they see major problems. Through the red button team process, management of OSC's Electronic Filing Staff empowered its employees to stop work on any project and start a problem resolution team (red button team) if they felt that a problem merited attention. The team identifies a solution, proposes it to management, and management either approves or disapproves it with an explanation.

The Electronic Filing Staff's red button team activities have resulted in improved service to internal customers. For example, a red button team recommended a change in procedures that enabled the staff to respond more quickly to taxpayer data requests from other IRS units.

The benefits of this change, as reported by Ogden managers and employees, included not only more trust and less acrimonious labor

relations, but also reports from internal and external customers of better and more timely service.

OSC has tried to ensure that employees understand what empowerment means at the center and to support it with professional staff to help employees develop and move to an empowering culture. One top manager said that the improvement in employees feeling like they are empowered is to a large degree a result of the center's development of a statement that spells out the center's position on empowerment.

He further noted that Ogden's QM structure of joint employee/management councils and subcouncils was established with the specific purpose of increasing employee involvement. Under the council structure at Ogden, a request to initiate a Joint Quality Improvement (JQIP) team to address an identified problem is sent to the division subcouncil. If the subcouncil determines that the problem warrants the establishment of a team, it sends a nomination form to the Joint Quality Council (JQC). If the JQC approves the nomination, it sends a letter of interest spelling out the subject area skills and expertise team members will need to address the problem back to the branch that made the request. Employee volunteers are then screened by the division subcouncil on the basis of their qualifications and available slots on the team. Selected volunteers receive 7 days of team training, and branch managers agree to give team members the time they will need to participate on the team.

The division subcouncil champions the team. It writes a basic charter for the team to follow, but otherwise the team is not directed. The JQC and subcouncil support the team by providing it with the resources (e.g., facilitation and technical support), space, and time it needs to do its work, requiring only a quarterly status report. The JQC, through the center director, also supports those recommended changes that require approval by IRS headquarters. The center director has himself written to analysts at IRS headquarters in support of team recommendations.

Top management has backed efforts to move to a more empowering culture by modeling the types of behavior expected of both lower level managers and employees. Ogden's director described his practice of holding town meetings with all employees as not only providing employees a channel of direct communication with him, but also demonstrating to lower level managers that this is the type of openness expected of them. He explained that he also conducts staff meetings in a manner that encourages participation from those managers who report to

him, and he sets expectations for them to do the same in their staff meetings. According to other managers, some branch managers are now holding similar town meetings. The director has also sought to promote employee involvement through the "If I were Director" program, in which any employee can suggest any change or improvement. We saw the simple one-page forms for making these suggestions at numerous locations in the center we visited.

The director said he reads all suggestions and each month selects the one he considers the best. The suggester is recognized by a ceremony that includes having his or her picture taken for the center newsletter while seated in the director's chair.

JQIP teams, according to one top manager, demonstrate the empowerment culture that Ogden is developing because they are made up of volunteers and can look at anything. Further, as he noted, team members are not just told they are empowered, they are trained on how to work independently as a team.

According to Ogden's director, one example of the empowerment engendered by teams is illustrated in the branch responsible for handling a large volume of incoming correspondence from taxpayers and tax practitioners. The tax examiners in the branch were responsible for providing input used in answering the correspondence, but they never saw the final products, which the center's director described as "a mess." The center established a quality improvement (QIP) team to examine correspondence problems. The team ultimately recommended that employees be empowered to answer correspondence and deal directly with customers.

The team developed a new letter system that includes a more professional letter format. Under the new system, tax examiners also have the authority to sign the letters so the taxpayer can contact individual unit employees directly. Employees also have the authority to expand upon the information when contacted by taxpayers and to do needed follow-up on taxpayer cases. The director said he has received positive feedback on this approach from both taxpayers and tax practitioners.

Using the team concept for empowerment is now going beyond QIP teams as Ogden has established natural work groups and empowered them to partially self-manage their operations. In this setting, as the manager said, she does not direct the group but rather "guides" it. Biweekly meetings are

held with other groups to consider operating issues and map their work processes as a part of efforts to improve operations.

Daily operating decisions are made by the group manager with input from the group. Groups have also played a part in choosing the leader/manager. For example, in one group, the employees within the group interviewed all the candidates for the job and made a recommendation to the Branch Chief, who made the final decision. The person the group recommended got the job. An underpinning of Ogden's empowerment efforts has been the involvement of the local Chapter of the National Treasury Employees Union. The union has full voting membership on all quality management councils. In particular, the union is represented on the director's overall management council and at the director's staff meetings. Thus, the union is involved in developing policy for the center. Not only does this ensure that employees' concerns are represented in all major decisionmaking forums, but employees also have another channel of communication for obtaining information about major changes. For example, the union has been involved with management in trying to assess the effects of the new Tax Modernization System—particularly the effects of any possible reorganization and redeployment of employees.

To illustrate the change in a less significant, albeit important, policy, the center director noted that while employees wished to have coffee and other drinks at their workplaces, center policy prohibited beverages because of the danger to taxpayer records. With input from employees, the union worked in partnership with management to change the policy. Employees can now have drinks at their workplaces. Tax records are still protected because employees use specially designed nonspill mugs.

As a result of President Clinton's Executive Order 12871, dated October 1, 1993, (Labor-Management Partnerships), OSC is replacing its quality council structure with a labor/management partnership council made up of three service center executives and three union representatives who will be responsible for overseeing QM implementation and QIP teams.

The benefits of empowering employees, as described by center managers and employees, often took the form of improved service to customers, both internal and external. In addition to the better services provided by the correspondence group to taxpayers and tax practitioners mentioned above, the Electronic Filing Staff has reduced delays in providing taxpayer information needed by other IRS units for court actions as well as

improved its own efficiency through designs that improved computer screen utilization.

Objective, Scope, and Methodology

This report is a follow-on to a survey report (Quality Management: Survey of Federal Organizations (GAO/GGD 93-9BR, Oct. 1, 1992)). That survey's objective was to determine the status of Total Quality Management implementation in the federal government. In that report we determined that although there were many Quality Management (QM) initiatives underway in the federal government, the level of employee involvement was limited. We also found that the top barriers to successful implementation were generally HRM-related.

Our objective in this report was to identify the HRM approaches used to implement QM at 10 federal organizations recognized for their QM efforts. These award-winning organizations were:

Aeronautical Systems Division, Department of the Air Force, Wright-Patterson AFB, OH.

Arnold Engineering Development Center, Department of the Air Force, Arnold AFB, TN.

Aviation Supply Office, Department of the Navy, Philadelphia, PA.

Cincinnati Service Center, Internal Revenue Service, Covington, KY.

Defense Contract Management District, Northeast, Defense Logistics Agency, Boston, MA.

National Technical Information Service, Department of Commerce, Springfield, VA.

Naval Air Warfare Center, Aircraft Division, Department of the Navy, Lakehurst, NJ.

Naval Aviation Depot, Marine Corps Air Station, Department of the Navy, Cherry Point, NC.

Ogden Service Center, Internal Revenue Service, Ogden, UT.

Veterans Affairs Regional Office and Insurance Center, Department of Veterans Affairs, Philadelphia, PA.

We judgmentally selected the 10 organizations used in our report on the basis of the following criteria: (1) they were among the 284 out of about

2,200 organizations responding to our earlier survey that identified themselves as achieving high levels of QM-related results and/or institutionalizing QM or were identified by experts in the field; (2) they reported higher than average employee participation rates in quality improvement activities; and (3) they had won governmental awards recognizing them as quality organizations, such as the Federal Quality Institute's Quality Improvement Prototype Award, the President's Award for Quality, or other departmental quality awards. To help us make our final selections, we reviewed written documents on organizations' quality awards and interviewed federal officials who work in the quality management area to get their advice. Further, we selected organizations to ensure civilian/military and geographical diversity. Finally, we selected the four organizations used in our case studies because we believed that they presented the clearest illustrations of each of the four approaches.

To develop our methodology, we reviewed QM literature and prior work that discussed approaches used by organizations to implement QM. This research helped us identify HRM issues we considered in doing our work and developing a structured interview instrument. To identify the human resource approaches used by the 10 organizations we (1) reviewed documents provided by the organizations, e.g., quality award applications as well as available documents that supported the documents, such as the results of employee and customer surveys; and (2) used structured interviews to question more than 300 managers and employees, including union officials, to determine the HRM barriers they encountered, the improvement in internal conditions they realized, and how their organizations' HRM strategies evolved.

We also examined the effect of QM on internal conditions at the 10 organizations. To do this, we (1) interviewed top managers and employees, including union officials, about the effect of QM implementation on the internal environment of their organizations; and (2) asked QM officials in the organizations to answer another copy of the questionnaire survey we sent them in 1992 to measure the current perceived beneficial effects of QM on the internal conditions in their organizations.

After we completed our field work, we invited quality coordinators from the 10 organizations to participate in a "close out" conference in Washington to discuss our preliminary findings. The quality coordinators from 7 of the 10 organizations (National Technical Information Service, Aeronautical Systems Division, Aviation Supply Office, Veterans Affairs Regional Office and Insurance Center, Naval Air Warfare Center, and IRS'

Cincinnati and Ogden Service Centers) attended this conference on July 6, 1994, and they provided valuable feedback on our work. Subsequently, the quality coordinators from the three organizations that did not send representatives to the close out conference (Arnold Engineering Development Center, Defense Contract Management District, and the Naval Aviation Depot) reviewed and agreed with our key findings.

We did our field work between September 1993 and August 1994 in accordance with generally accepted government auditing standards.

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