

If they want employees to take collective responsibility for customers, managers must do more than reorganize.

Breaking the Functional Mind-Set in Process Organizations

by Ann Majchrzak and Qianwei Wang

Thousands of businesses have reengineered work in order to focus employees on processes that clearly provide value to customers. They have done away with their functional silos and created new organizational structures—process-complete departments—each able to perform all the cross-functional steps or tasks required to meet customers' needs. Although many of these efforts have paid off in the form of lower costs, shorter cycle times, and greater customer satisfaction, many others have resulted in disappointment: companies have endured the trauma of reengineering only to discover that their performance is no better—and in some cases actually worse—than before.

What caused things to go wrong? There certainly are a variety of possibilities, among them a failure to focus on parts of the business that were significant to customers and a failure to integrate autonomous, functionally focused information systems into a shared, process-focused database and network. But something else that is often overlooked is the tendency of managers and reengineer-

ing teams to underestimate the actions required to transform the way employees behave and work with one another. They assume that simply changing their organizational structures from functional units into process-complete departments will cause people to shed their functional mind-sets and will forge them instantly into a team intent on achieving common goals.

Over the last three years, we conducted a study of U.S. electronics manufacturers that proved that this assumption is wrong. At each of the companies, which ranged in size from small concerns to such corporate giants as Texas Instruments, Hewlett-Packard, and Unisys, we examined a department whose responsibilities included manufacturing—or, to be more specific, assembling a printed circuit board, inserting the board into an electronic commercial product, or both. Each manufacturing department had been identified by management as the one with the best practices in the company. Each had fewer than 300 workers. We chose these departments because they were sufficiently homogeneous—in terms of their production processes, their national cultural influences, and the market conditions they faced—to permit a comparison of their performances.

Of the 86 departments, 31 could be classified as process complete because they were responsible for most manufacturing steps, support tasks, and interfaces with customers. Those responsibilities included creating the schedule; acquiring the orders and the needed parts and people; training workers; moving parts; setting up, maintaining, and repairing equipment; transforming the parts into a final product; inspecting and reworking the product; delivering the finished product to customers; obtaining feedback from customers and making modifications in the product to meet their needs; and evaluating and improving the process. Reengineering experts such as Michael Hammer and James Champy would call this set of jobs the order-fulfillment process. We classified the remaining 55 departments as functional because they did not have responsibility for most of those activities.

We obtained data on cycle times, conducted detailed work-flow analyses, identified who was responsible for each step in the process, documented

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the organizational structure, observed how the department coordinated work, and interviewed managers and workers. We interviewed more than 1,500 people. To compare performances, we focused mainly on cycle times, for three reasons. First, cycle times are a major competitive factor in the electronics industry, and many companies in our sample embraced process-centered structures specifically to shorten their cycle times. Second, it was possible to compare cycle times in a uniform fashion. Finally, cycle times included time spent reworking parts and therefore could serve as a process-quality metric, too.¹

To our surprise, we found that process-complete departments did *not* necessarily have faster cycle times than functional departments. In fact, the only ones that did were those whose managers had taken steps to cultivate a collective sense of responsibility among workers that went beyond merely changing the organization's structure. We found

Managers who aren't ready to promote a collaborative culture may be better off leaving their functional departments intact.

that such collective responsibility could be fostered in a variety of ways: by structuring jobs with overlapping responsibilities, basing rewards on group performance, laying out the work area so that people can see one another's work, and designing procedures so that employees with different jobs are better able to collaborate.

Interestingly, the particular method or number of methods employed did not seem to matter. Process-complete departments that had adopted all four methods did not have significantly faster cycle times than those that had adopted only one or two. What did matter was whether a company had embraced *any* of the methods—whether the company recognized that it needed to do more than merely restructure the organization to foster a collaborative culture.

And it mattered considerably. (See the exhibit "How Ways of Promoting Collaboration Improve Cycle Times.") Process-complete departments that had acted on the insight had cycle times as much as 7.4 times faster than those that hadn't. Even more startling, the latter departments had much longer cycle times—as much as 3.5 times longer—than the

functional departments. The process-complete departments with longer cycle times had one or several of the following critical deficiencies: jobs with narrow responsibilities, employees with many different titles, rewards based solely on individual performance, physical layouts that discouraged people from seeing one another's work, and no explicit procedures for knitting employees together. In other words, those departments maintained functional distinctions and a narrow focus on specific tasks, thereby negating the potential benefits of a process-focused structure.

Changing the Culture

In the course of conducting this study and other research, we have asked many managers who are reengineering their businesses to explain why they are moving toward process-complete departments. They always answer that such a change will reduce

the time and effort required to integrate and monitor the work of autonomous units, thereby reducing cycle times and instilling in workers a common understanding of what they have to do to satisfy customers.

But when we ask managers to describe the changes that must take place for their organizations to achieve those objectives, they speak mainly of melding multiple func-

tions into customer-focused teams responsible for an entire process. Most of the managers assume that this structural change will naturally create a common understanding of, and a collective sense of responsibility for, customers' needs. Surprisingly few can define the type of collaboration they want employees to achieve, let alone the means they might employ to encourage such collaboration.

For example, one organization had restructured procurement and manufacturing engineering by melding the two functions into customer-focused teams responsible for the entire process—from the initial price quotation to the customer to the delivery of the product. The individual jobs of the manufacturing engineers and the procurement officers on the teams were broadened but did not overlap. Although every team was now supposed to be responsible for customer satisfaction, the procurement officers continued to spend their time buying parts from suppliers, and the manufacturing engineers continued to occupy themselves with designing and manufacturing products and proposing new designs to customers. As a result, the two groups did not feel jointly responsible for total customer satis-

faction and retention, and problems fell through the cracks.

Such a situation is not unusual. Managers often underestimate the difficulty of breaking the functional mind-set. During the reengineering process, they spend enormous amounts of money defining which tasks the process-centered units should perform and which people should be assigned to those units, but they give relatively little thought to restructuring incentive systems, reconfiguring the work space, or designing jobs and procedures within the process-based units to encourage collaboration and collective responsibility. They also give little thought to their own jobs. Many managers do away with functions but fail to change their own positions. They continue to act like functional chiefs even though the functions no longer formally exist.

Such managers overlook the importance of changing their organization's culture. They fail to see that collective responsibility is an attitude, a value, a concern. It means taking an interest in one's colleagues and in improving the outcome of mutual (as opposed to individual) efforts. People who feel collectively responsible are willing to work especially hard to avoid letting the team down. They will take the initiative in offering a colleague a helping hand with a work problem even though doing so might make it more difficult for them to meet their own deadlines. Changing the organizational structure alone will not instill such values or behavior.

Our research indicates that if companies are not ready to take the steps required to change their culture, they may be better off leaving their functional departments intact. After all, coordination among functions can be greatly improved without reorganizing around complete processes.

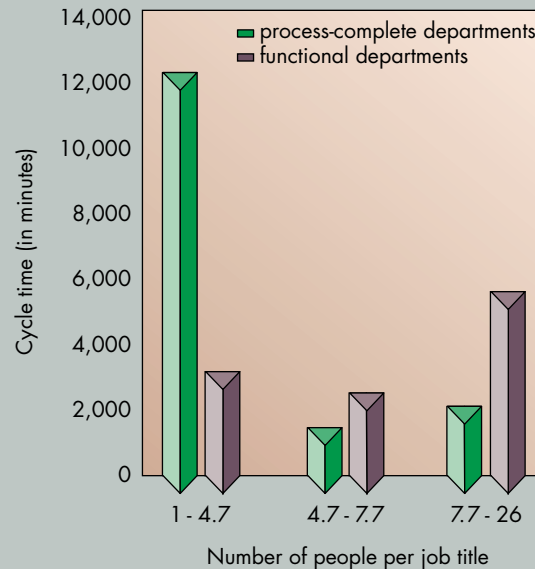
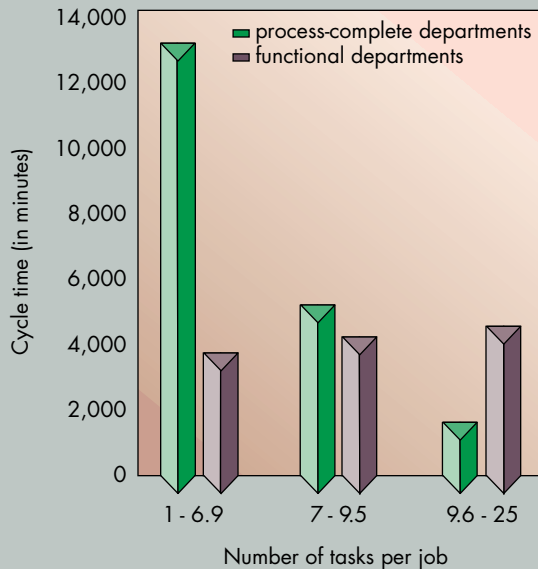
The high-performing functional departments we studied showed, for example, that members of a function can be encouraged to help outsiders if they are given cross-functional responsibilities. Information networks can be installed to distribute information more widely, more quickly, and in a more useful form. The links among functions can be strengthened by having fewer sign-offs for unusual requests, by introducing specific and clearly stated outcome-based performance criteria, and by inviting individuals from other functions to frequent milestone-review meetings.

Reengineering experts suggest that such changes will not go far enough to make employees feel collectively responsible for producing the outcomes required to satisfy customers. Our research, however, indicates that companies may reap greater



Process-complete departments that had fostered a collective sense of responsibility in their workers had faster cycle times than those that hadn't.

How Ways of Promoting Collaboration Improve Cycle Times



benefits by strengthening the ties among their functions than by creating process-complete departments that lack a collaborative culture.

Cultivating Collective Responsibility

In our study, we focused on the impact of the four critical means of building a collaborative culture. Of the 31 process-complete departments, none had adopted all four methods. The best performers had employed an average of 3, while the worst had employed an average of 2.7—a difference that is not statistically significant. Let's examine each method in more detail.

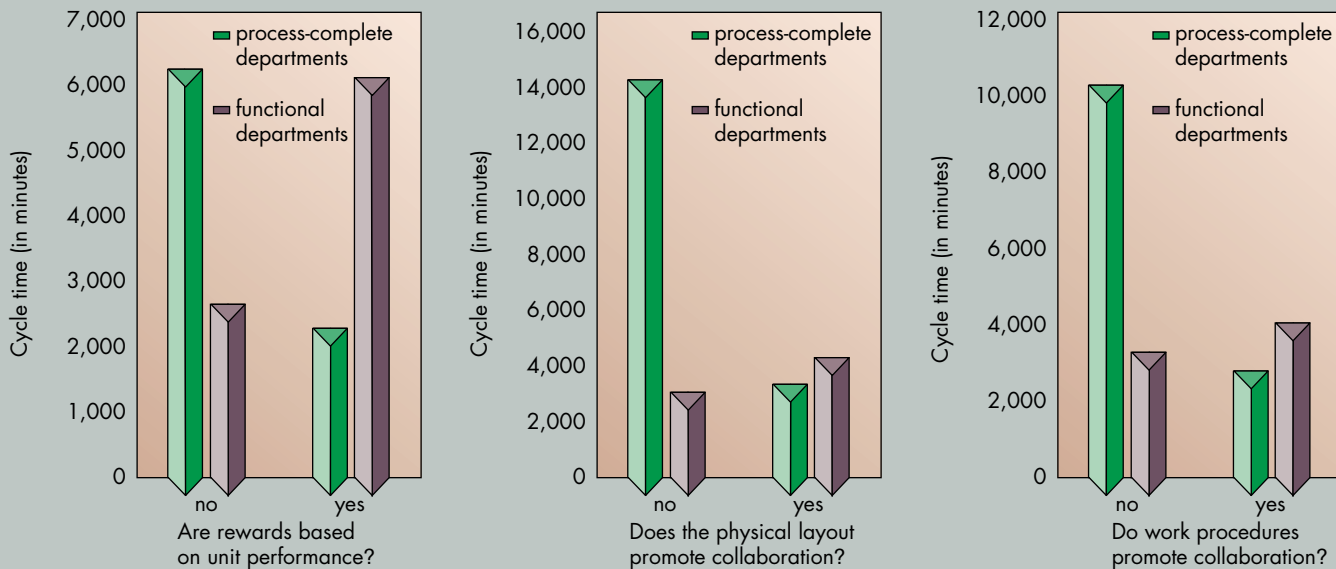
Make responsibilities overlap. In our sample, process-complete departments made responsibilities overlap by designing jobs with a relatively broad range of duties, by having a relatively small number of job titles, or both. The cycle times of the 20 departments with broadened jobs (jobs with responsibility for about 10 to 25 different activities in the process) were, on average, 7.4 times faster than the cycle times of departments that did not have broad jobs (jobs with responsibility for fewer than 7 activities). Similarly, the cycle times of the 10 departments with few job titles (departments in which about eight or more people had the same title) were, on average, 5.8 times faster than the cycle times of departments with many titles (those in which fewer than five people had the same title).²

One department in our sample that had made responsibilities overlap by designing broad jobs and

using few titles was a 61-person unit that assembled printed circuit boards. The department, part of a 1,600-person facility owned by one of North America's largest computer-hardware manufacturers, was responsible for all the steps involved in fulfilling customers' orders. Whereas many similarly sized departments in our sample had as many as 13 titles, this department had only 4: operators, process operators/inspectors (higher-skilled operators), maintenance technicians (for complex repairs), and quality-control people (for suggesting improvements to the process). The 29 operators and 25 operators/inspectors performed most of the department's tasks, and the two technicians and four quality-control people served as expert consultants. All 60 employees reported to a single supervisor.

The department also tried to break down the boundaries between positions by assigning people to multiple teams, by rotating assignments within teams weekly, and by holding unitwide meetings twice a month to discuss improvements to the process. As a result, every employee could perform most of the department's functions.

Designing jobs so that employees can at least partially perform most of the functions assigned to a department helps create a shared sense of responsibility because people understand one another's work and thus share a common language and similar constraints and objectives. More important, if a process-complete department does not make responsibilities overlap, it will end up with a set of specialized jobs by default and may inadvertently



re-create the same coordination problems and high overhead that bedevil organizations with functional departments.

Base rewards on unit performance. Rewards may take the form of bonuses, raises, or nonfinancial recognition. In our sample, 12 of the process-complete departments rewarded their members for meeting or exceeding unitwide targets or standards. The cycle times of the 12 departments were, on average, 2.7 times faster than those of the departments that based rewards on individual performance alone.

Rewarding unit performance is important because it prevents employees from placing their individual or functional needs above customers' needs. For example, if employees are rewarded for reducing processing times at their individual workstations, they probably will not feel compelled to examine ways of reducing cycle times at the places between or outside their workstations (such as in inventory control, purchasing, or order preparation). In contrast, employees rewarded for achieving high levels of customer satisfaction or reductions in the department's total cycle time are more likely to be motivated to solve what they traditionally would consider other people's problems.

One high-performing department with unit-based rewards chose to tie a percentage of the monthly bonuses for all employees directly to cus-

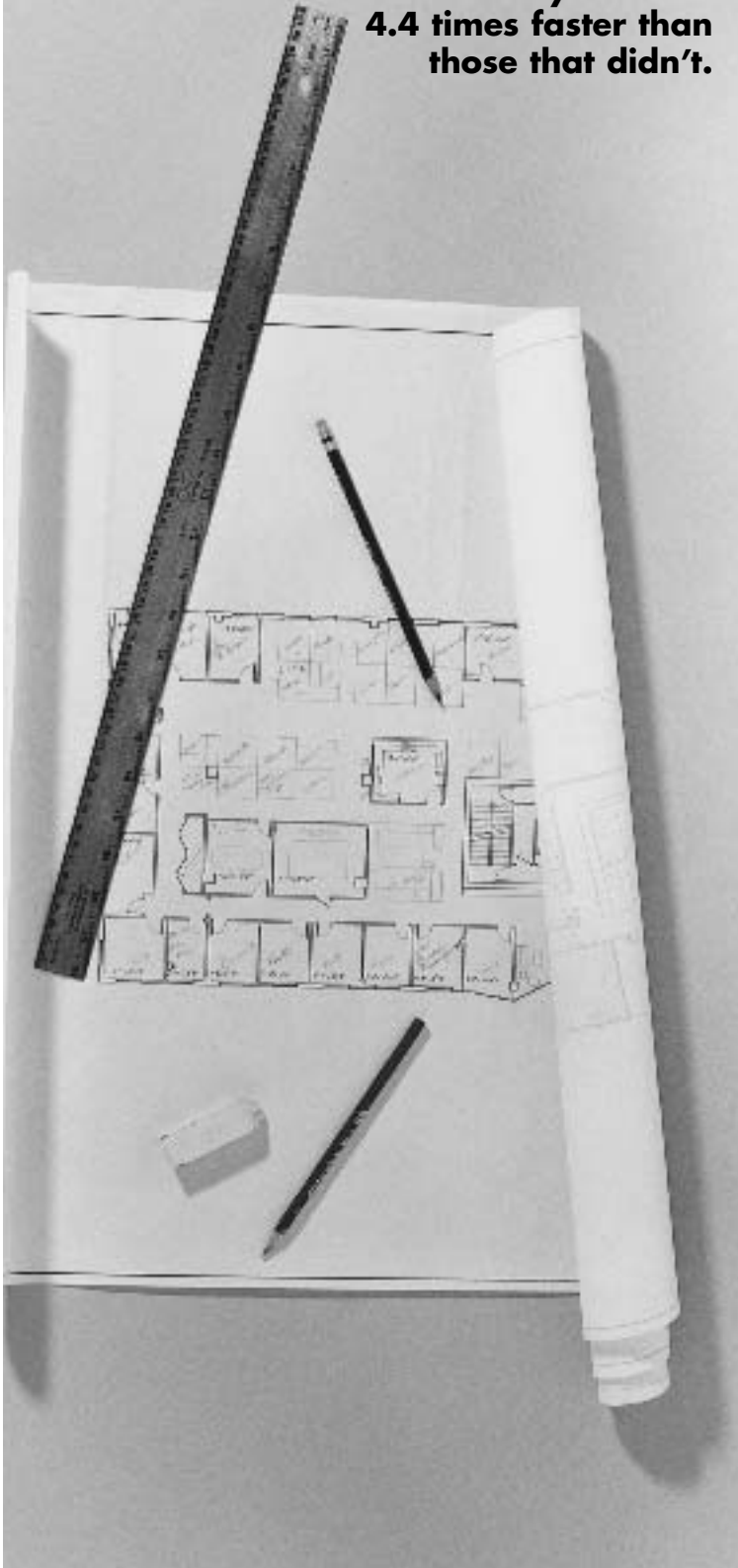
tomers' satisfaction. It tied another percentage to the plant's performance, using such measures as revenue and profit. It based the remainder on group and individual performance in meeting product-quality standards. This complex reward system was possible because the department had accurate measures and tightly monitored processes. For example, quality levels for critical process equipment were monitored and reported automatically in real time. Management set upper and lower limits, which operators used to track their own performance; they could obtain information on daily,

Departments can reduce cycle times by designing jobs with overlapping responsibilities.

weekly, and monthly trends within seconds. Alarms sounded when the equipment began to go out of control. As a result, employees became aware of problems immediately and were motivated to work together to solve them.

Change the physical layout. The layout of a work site can either inhibit or promote collective responsibility. In our study, process-complete departments with layouts that permitted people to see others' work had cycle times 4.4 times faster than those with layouts that didn't.

Physical layouts that permitted people to see others at work resulted in cycle times 4.4 times faster than those that didn't.



Layouts can encourage people to share information about one another's work and try out new ideas openly. One such layout organizes processing equipment in a circle or U-shaped cell with workers performing their tasks inside the cell. This kind of layout, used at several of the sites we studied, allows workers to share tasks easily, to observe when others are in trouble, and to offer assistance without letting their own performance deteriorate.

Another type of collaborative layout we observed was a special area for continuous improvement. A place for the work group to sit and discuss problems, such an area contains all the data relevant to the manufacturing floor (either in computers or on wall charts), as well as the tools for documenting, analyzing, designing, and building prototypes. This type of area makes it easier for people to analyze problems together, build prototypes, and discuss their individual and group-inspired ideas.

In contrast, certain layouts can prevent people from spontaneously sharing information, seeing how others do their work, and noticing opportunities for assisting others. Machine tools installed back-to-back with control panels facing outward are an example of this kind of layout: the operator of one machine tool cannot see the work of the operator of the other. Another example is a traditional long assembly line in which the assembler at the beginning of the line is unable to see what an assembler is doing farther down the line. When people cannot see others at work, misperceptions arise both about the nature of their jobs and about the pace, pressures, and commitment of those employees. The "I work harder than you do" mentality can easily develop.

Redesign work procedures. We asked employees to tell us to what extent their departments' formal and informal work procedures encouraged them to do the following three things: share ideas for improvement with people in other disciplines, involve everyone who would be affected by a decision in making that decision, and help others do their work even if it caused their own productivity to suffer. In 24 of the process-complete departments, employees reported that those three ways of relating to one another were integral to their work. By *integral*, they meant that such behavior was encouraged by management, was systematically monitored, and occurred frequently. The cycle times of the 24 departments were, on average, 3.3 times faster than those of the other 7 in our sample.

For example, in one 57-person department that assembled computers (part of a 2,700-person company), there were no teams or broad jobs. Although it was a supervisor-directed unit, not a self-

managed one, and had narrowly defined jobs, workers reported that management strongly encouraged them to collaborate with coworkers and with support staff.

One way management encouraged collaboration in this department was by providing all workers with a computer terminal that connected them to an E-mail network and an electronic problem-reporting-and-tracking system. Managers actively used the E-mail network to keep workers informed

When managers redesign their organizations, they should ask their employees what they need in order to work well together.

of customer, cost, and market data. They also encouraged workers to use the reporting and tracking system to log problems and to comment on those that others encountered. The problems and comments were routed to the people assigned to provide the solutions. Because the problems, the responses, and the speed of the responses were tracked and measured, the engineers and other support people whose job it was to solve the problems were motivated to heed the workers.

The department's managers guaranteed that support staff would arrive on the scene within three to five minutes of receiving word of a line stoppage. (Workers knew whom to notify, and the department's E-mail and pager systems ensured that the messages got through. In addition, managers tracked response times.) This approach made the workers feel confident that the role of support staff really was to support them—to help them solve problems quickly.

Finally, the managers made themselves available for informal discussions in the cafeteria with anyone who wished to join them. Workers reported that they could discuss problems freely at these sessions. All in all, the message came through clearly that management considered collaboration extremely important.

Customizing the Design

There is no single cookie-cutter design for achieving a collective sense of responsibility—that is, no one approach is appropriate for all process-complete departments, even within the same orga-

nization. Neither does it seem to matter how many different methods are employed. What counts is how well any one method is implemented. The implication: When redesigning their organizations, managers should not be overly influenced by what other units in their companies or other “best practice” departments are doing. Instead, they should ask their own employees what they would need in order to work well together. In addition, managers should consider the constraints and possibilities provided by technology, the work process, the existing organizational culture, and the organization's strategic mission.

For example, changes in the physical layout are likely to facilitate a collective sense of responsibility only when face-to-face interaction is essential—such as when workers in different disciplines with different professional languages must examine a prototype together or listen to the odd noises emanating from a machine tool to reach a common understanding of a problem and come up with the best solution. In an organization where workers already share a common professional language and are not tied to their desks, changes in the physical layout may not be sufficiently compelling to create a collective sense of responsibility. Instead, such workers may benefit from team-based rewards or overlapping responsibilities.

Our study suggests that the success of business-process reengineering depends on how well managers create a collective sense of responsibility. Restructuring by process can lead to faster cycle times, greater customer satisfaction, and lower costs, but only if the organization has a collaborative culture. Combining the boxes on the organization chart alone will not create such a culture.

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1. The cycle time of each department was the total throughput time for the three products that accounted for the highest percentage of the department's output during the most recent six-month period. Total throughput time was the time from order to delivery and included times for operation, setup, queuing, transportation between work sites, inspection, testing, and rework.

2. For each of the four methods of cultivating a collaborative culture, we determined through statistical analysis that it was highly likely (at a 95% level of confidence) that the particular method we were studying—and not one of the other three—was responsible for the difference in the cycle times of the departments that had employed that method and the departments that hadn't. This means that 95% of the time, departments that employ the particular method will have faster cycle times than departments that don't.

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