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**The Performance Management
Of Teams**

**CEO Publication
T 91-2 (187)**

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Introduction

The crisis of adjusting to global competition during the 1980's generated a large number of studies examining organizational factors contributing to various aspects of competitiveness. The theme of lateral integration appears repeatedly in this literature, as study after study illustrates its importance to effective organizational execution in such areas as innovation (Kanter, 1983), quality (Hauser and Clausing, 1988), new product development (Souder, 1988), time to market (Stalk, 1988), and sales and customer service (Cespedes, Doyle, and Freedman, 1989). In practice, a large variety of teamwork mechanisms have been advocated and implemented with varying degrees of success. Many organizations have found that proclaiming the need for teamwork is easy and comfortable. Judging from the proliferation of teams in organizations, formally designating teams also appears to be readily done, although fraught with thorny design issues. Actually achieving teamwork is more difficult. In particular, in our work with a large number of organizations, we have found that mechanisms for managing the performance of teams are not well developed. Furthermore, team performance management mechanisms and processes are at odds not only with the predominant individually oriented performance management mechanisms in place in most organizations but also with the assumptions these organizations make about work design, measurement, and control (Dertouzos et al, 1989).

This paper describes some of the forces that are heightening the importance of teamwork in organizations today, and the challenges they pose for the management of performance. It then reports the findings from a number of studies investigating the relative contribution of individual and group processes to the management of performance in settings that involve high degrees of task interdependence. Finally, it raises some of the complex organizational and measurement issues that must be resolved to successfully manage and reward team performance.

The Importance of Lateral Integration

Many, perhaps most, organizations today exist in highly complex and turbulent task environments with a great deal of uncertainty stemming from the extremely dynamic competitive markets they face, and often from the nature of the technologies they employ and the work they do (Mohrman, Mohrman, and Worley, 1990). These conditions are particularly prevalent in technology companies that need to achieve breakthroughs in a rapidly developing technological arena, and to rapidly introduce new high quality products, and processes that enable timely design and manufacturability (Von Glinow and Mohrman, 1990).

Such environments have been found (Lawrence and Lorsch, 1967) to pose simultaneous requirements for enhanced differentiation and for increased integrative mechanisms to ensure collaboration of interdependent subunits and individuals. Galbraith's (1973) framework for understanding organizational design is based on the information processing needs of the organization. In an organization where the work is complex, interdependent, and uncertain, the standard, vertically oriented coordinative mechanisms--goal-setting, hierarchy and rules and programs--must be supplemented by other approaches. A complex organization that cannot allow performance to slip will have to rely heavily on lateral coordination mechanisms to supplement vertical integrative approaches.

Supporting these general theoretical directions, the need for greatly increased lateral integration to address the performance pressures that face organizations today is a theme that appears in a number of streams of research. These pressure include the following:

1. Quality

Pressures for quality have led to widespread implementation of quality improvement frameworks (Deming, 1986; Juran, 1964) that emphasize the need for breaking down both vertical and horizontal organizational boundaries to facilitate the lateral, cross-functional collaboration necessary to improve organizational processes and enhance quality. These frameworks define quality as responsiveness to customer requirements rather than to hierarchically determined standards. This orientation emphasizes the importance of close working relationships between design, manufacturing, and marketing in order for the organization to remain in touch with and responsive to the external market. Organizational units also orient their activities to the needs of the "internal customers"--others in the organization who receive their work and with whom they are interdependent.

Quality improvement frameworks identify "continuous improvement" of organizational processes as the appropriate organizational goal. The people actually carrying out the processes are tasked with systematically measuring and studying them and with introducing changes to improve them. Consequently, substantial information processing requirements are introduced into the technical core of the organization.

The emphases on organizational processes that cut across different units of the organization and on customer orientation both lead to a lateral view of the organization and an understanding of its integrative needs. In order to accomplish this integration, quality improvement approaches often create improvement structures (teams, steering groups and so forth) that exist in parallel to the existing organization (Lawler and Mohrman, 1985; Scholtes, 1988).

2. Time

Demands for more rapid new product development and time to market cycles, and for on-time delivery create pressure for speed of execution (Stalk, 1988). Cross functional teamwork is generally mentioned as a key element in achieving fast cycle time in the new product development process (e.g., Takeuchi and Nonaka, 1986; Bower and Hout, 1988; Souder, 1988). This teamwork permits parallel processing and real time resolution of coordinative needs, and also fosters the learning that is required by organizations in order to introduce new products quickly.

3. Cost

Cost pressures require that organizations implement a number of "breakthrough" manufacturing and design techniques (Haas, 1987), most of which require interfunctional collaboration and teamwork. These include concurrent engineering, workcell designs, and just-in-time procurement (Dertouzos, 1989). Effective utilization of these approaches requires the ability of lateral entities to make decisions without awaiting the timely and costly escalation of issues through the hierarchy.

Management and employees in general have not always been concerned with costs. Traditionally, the major stress has been on getting the work out, production, making schedule, etc. Cost breakthroughs require employee ownership of cost numbers. For this reason productivity based group incentives such as gain sharing have been used to foster this sense of ownership. These various group incentive schemes have been shown to demand high degrees of employee involvement and teamwork if they are to work (Blinder, 1990; Lawler, 1990).

4. Process Technology

Rapid technological advances in the information processing tools that organizations utilize in doing their work make possible heretofore unthinkable levels of real time lateral integration that permit parallel processing and interfunctional problem solving. Distributed information capabilities, real-time networks, shared data bases and the development of powerful common languages enable lateral real time processing of uncertainty once left for hierarchical and sequential resolution. The effective utilization of CAD/CAM, for example, promotes information processing across the various units involved in the design to production process. Collaboration among these units is required in the development and implementation of the CAD/CAM system itself and in its day-to-day utilization (Adler, 1990).

5. Innovation and Learning

Innovation, the solving of complex problems, and organizational learning are becoming increasingly important to competitiveness in an economic environment where all viable firms are establishing fundamental organizational capabilities. As organizations find that simply becoming more efficient in their current processes is an insufficient response to the challenges that they face, they will increasingly need to learn new ways of operating-- innovative breakthroughs that go beyond incremental improvements. Innovation, complex problem solving and learning processes are the product of teamwork (Kanter, 1983; Pinchot, 1985; Mohrman and Mohrman, 1989. Novel combinations of perspectives and various knowledge bases must be applied to issues, problems and needs that cannot be resolved within one existing frame of reference . Addressing today's performance challenges, for example, requires a simultaneous juggling and resolution of the logics that have dominated how organizations think about cost, schedule and quality, generally requiring collaboration between various functions that have historically housed the responsibility for one of these concerns. Lateral integration facilitates the conceptualization of these breakthroughs and the implementation of change.

Organizing For Lateral Integration

In response to the competitive issues discussed above, organizations are increasingly relying on cross functional teams (such as product development, project, program, and customer service teams) and other lateral integrating approaches (such as meetings, technologically mediated networks, special integrating roles, task forces, temporary teams, and matrix structures). Whether lateral integration is achieved by teams or by other approaches, teamwork is a necessary element of success.

In our experience, organizational members generally appreciate the importance of these lateral processes. On the other hand, they are often frustrated by how little lateral integration is actually achieved and by the organizational impediments to it.

Two fundamental organizing principles work against lateral integration in most organizations. They are designed analytically and their emphasis is on hierarchical control. In order to reduce the amount of information processing required of any one person or unit, organizations are typically structured analytically. Different expertises are separated into specialties, and these specialties and their concomitant ways of looking at the world are organized into different units. Specialized units are further broken down into jobs, which specify the particular set of tasks for which an individual is responsible. "Work breakdown" is the process of taking complex technical problems, breaking down the work, and assigning

pieces of it to units and then to individuals who are held accountable for their performance results. This paradigm is the explicit or implicit foundation to the organization of most firms.

The emphasis on hierarchical control is embodied in the distinctions between three conceptual layers of the organization: 1) the technical core of the organization that performs the work; 2) the top management group that addresses strategic directions and sets targets, objectives and policy; and 3) the often sizable group in the middle whose responsibility is to control the work of the technical core, and translate the strategic direction developed at the top into goals and processes for the technical core (Thompson, 1967). In large firms, these three conceptual layers have burgeoned into many more, as levels have been added to reduce spans of control.

Analytical organizing principles and hierarchical control mechanisms reduce the need for lateral organization, but also work against its successful accomplishment. When work is packaged for highly differentiated units, it is more difficult to achieve integration and to simultaneously bring multiple perspectives to bear in real-time on-line problem solving and coordination. Control functions that are vested in special hierarchical positions make it difficult for those performing the work to make on-line adjustments and to enact the iterative coordination processes that are required to work out reciprocal interdependencies.

The human resource practices that exist in most organizations today have been developed to support analytical and hierarchical approaches. For instance, hierarchical superiors review individual subordinates, employees are rewarded based on their individual performance, performance is measured in terms of specific job standards and goals of individuals, and people specialize in their work and are trained accordingly. Less attention has been paid to performance management ¹ approaches that support the synthesis of various parts of the organizational system and the building of lateral processes.

Dominant performance management approaches compound the problem by making assumptions of stability. These approaches tend to lock in jobs, specialties, goals, and standards when competitive pressures demand change and flexibility.

The lateral integration necessary to address stringent performance challenges, effectively integrate a myriad of technical expertises, and solve complex problems through application of multiple frameworks requires new ways of organizing. These new approaches emphasize systemic (as opposed to analytic) approaches, and they foster ongoing self-design by (as opposed to hierarchical control of) units throughout the organization that have to change their activities continually to adapt to strategic redirections and to marketplace and technological change. Organizations will be flatter, will rely more heavily on teams, and will be less segmented (Mohrman, Mohrman, and Cohen, 1991). New performance management systems are required to support these systemic and self-designing approaches to organizing.

¹"Performance Management" is used throughout this paper to refer to the broad array of management practices that are aimed at managing performance of human resources, including appraisals, goal-setting, rewards, and developmental planning.

The next section of this paper examines the impacts of various individual and team oriented approaches to managing performance. It is our contention that traditional forms of performance management based on hierarchy and analysis are not adequate to stimulate the kinds of behaviors needed in rapidly changing environments. Performance management approaches designed to fit self-designing, systemic work designs are needed. The next section summarizes several research studies that support this contention.

Managing Team Performance: Research Findings

We have been carrying out a program of research to understand how various performance management practices (including performance measurement and incentive compensation) contribute to successful team organization and performance. In this section we describe the first stage of this research: our work with three organizations that were in the process of redesigning their performance appraisal and/or pay for performance practices. The results in this section come from the diagnostic work that helped set the stage for the redesign efforts.

Sample and Approach

The three organizations participating in this research are (with pseudonyms): Avionics, Inc. a defense contractor that is a division of a larger corporation that produces a variety of products for both commercial and defense markets; Aerocorp, a large aerospace contractor with several divisions producing products for both defense and commercial use; and Oilco, a large energy company with a chemicals division as well as upstream and downstream oil and gas divisions. All are Fortune 500 organizations. These companies were interested in the effectiveness of their performance management practices given the changes that were occurring in their task environments.

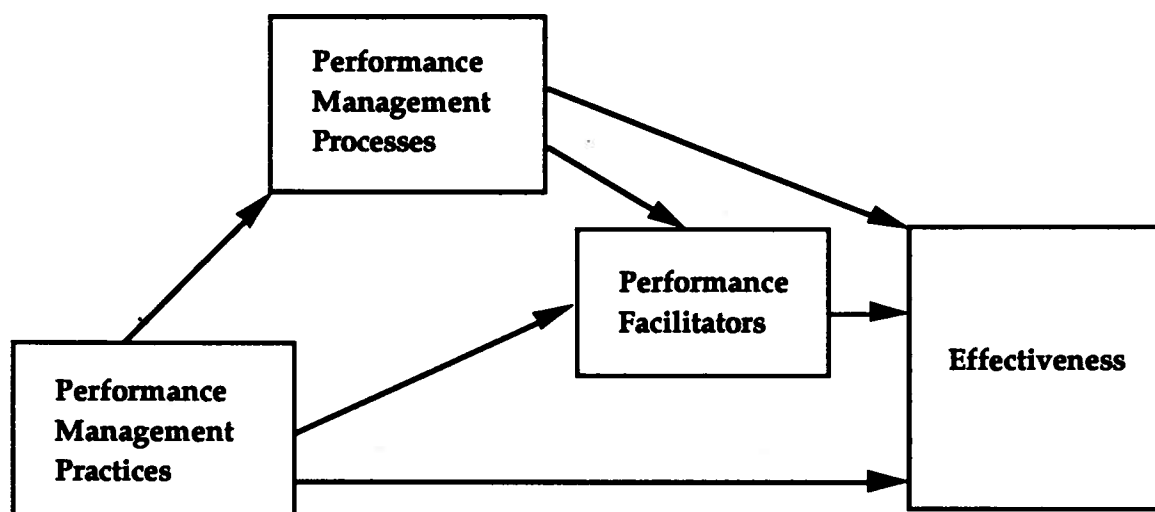
Diagnostic studies were conducted separately in each company, but the cores of the data gathering instruments were identical in each of the three studies. The studies consisted of interviews of representative professional and management individuals across all levels and parts of the companies and surveys of samples of these same employee groups. In Avionics, Inc the survey sample was 100% of all exempt employees in the division. In Aerocorp and Oilco the samples were 20% of the total corporate populations. Survey response rates were around 60% (Avionics, Inc., N=400; Aerospace, N=4900; and Oilco, N=2500).

Diagnostic Model

Figure 1 presents our basic model for diagnosing the effects of performance management practices in these organizations. The model portrays a set of causal paths that are implicit in much of the literature about

the management of performance. Performance Management Practices include reward and appraisal practices that exist in the organization to ensure that performance is reviewed and incented. Performance Management Processes are the interpersonal processes that people use to manage performance in an ongoing way. These processes can be performed by supervisors or by workgroup peers. Performance Facilitators are conditions in the work place that enable people to know what is expected of them in their job and how to do it. Effectiveness is the degree to which various valued outcomes occur, including performance and human outcomes.

Figure 1
Model of Performance Management Impacts



According to the model, performance management practices can influence effectiveness directly. For example, pay for performance might do this by motivating people. Practices can also encourage interpersonal processes and facilitators. For instance, performance appraisal is often expected to encourage feedback or to result in the establishment of goals that may in turn promote effectiveness. Interpersonal processes such as supervisor structuring of work may directly contribute to effectiveness, or may operate by setting up facilitators such as performance standards that then contribute to effectiveness.

Performance Management Practices. We measured three practices that were the significant performance management activities that occurred in these organizations. Pay for Individual Performance measured the degree to which respondents perceived their pay to be based on their performance. This link was intended to be made formally by basing pay increases on the individual performance appraisal system.

Each company also had a special awards program that gave one-time awards to both individuals and groups. These programs were the only avenue available in these companies to reward teams with cash bonuses. Special Awards is a measure that reflects the extent to which employees perceived an effective special awards program to be in operation. The Workgroup Self-appraisal measure is the extent to which work groups and project teams regularly discuss the effectiveness of their work.

Performance Management Processes. Three questionnaire scales measured the extent to which supervisors: 1) gave feedback to group members (Supervisor Feedback); 2) structured tasks and set goals (Supervisor Structuring); and 3) stressed and exhibited a high performance orientation (Supervisor Performance Norms). Three parallel scales measured the degree to which the work group engaged in the same three processes for its members (Workgroup Feedback, Workgroup Structuring, and Workgroup Performance Norms).

Performance Facilitators. We measured five facilitators. Skill Level measured the degree to which the employee feels adequately trained and sufficiently skilled for the job. Job Specifications is a measure of the degree to which employees report that they have clearly specified jobs and clearly prioritized job responsibilities. Performance Standards measured the extent to which employees have jobs for which goals and performance standards can be and are defined. Understanding Role in Group measured the extent to which employees know how their work fits into that of the work group. Teamwork measured the active assistance that work group members give to one another.

Effectiveness. We measured four types of effectiveness. Individual Performance was measured in two ways: by employees rating their own performance on several dimensions and by reporting their perceptions of their supervisor's ratings of their performance on the same dimensions. Previous research utilizing the same measures indicated that subordinates usually have an accurate sense of their supervisors' ratings (Lawler, Mohrman, and Resnick, 1984). Workgroup Effectiveness and Project Effectiveness measure the respondent's perception of the quantity and quality of his/her work group's and/or project's performance. We also measured some human aspects of effectiveness: Trust (of the organization and its management) and perceptions of Pay Equity.

Analysis

Multiple regressions were performed based on the causal path assumptions in the model. First, we regressed each of the processes on the practices. This gives us a picture of how the practices contribute to the processes. Second, we regressed each facilitator on both the practices and processes, giving a pattern of how each of the latter variables contributes to the establishment of the facilitators. Finally, we regressed each of the measures of effectiveness on the practices, processes and facilitators. This gives us the pattern of how each of the practices, processes, and facilitators contributed to effectiveness directly. This approach to analyzing the data allows us to discover paths that begin with practices and end with effectiveness, and enables us to see both direct and indirect relationships. The structure of the model and the

path analyses imply a causal direction. Since the data are from surveys collected at single times and the paths are based on correlations, causal relationship cannot be proven. However, proof of a causal path was not the intent of the research. Rather, it was the examination of the existence of relationships that are germane to the development of performance management systems in organizations. Nevertheless we will tend to describe the results as though they were causal in nature, because of the logical causal model that guided the collection of data.

Findings

Our central interest in discussing these results is the pattern of results that help to clarify the relative contributions of individual and group oriented performance management. The regressions described above were calculated separately for each organization's data. Figure 2 presents only the paths that consistently and significantly show up across the three separate organizational studies. We describe the results as they show the patterns of variables that lead to the Effectiveness variables. More complete reporting of particular regression analyses is available elsewhere (Mohrman, Mohrman and Worley, 1988). In all three organizations the respondents reported a high degree of interdependence with others with whom they needed to coordinate in order to do their work. The following findings therefore, should be interpreted only in this light. They do not necessarily apply to settings that have little task interdependence.

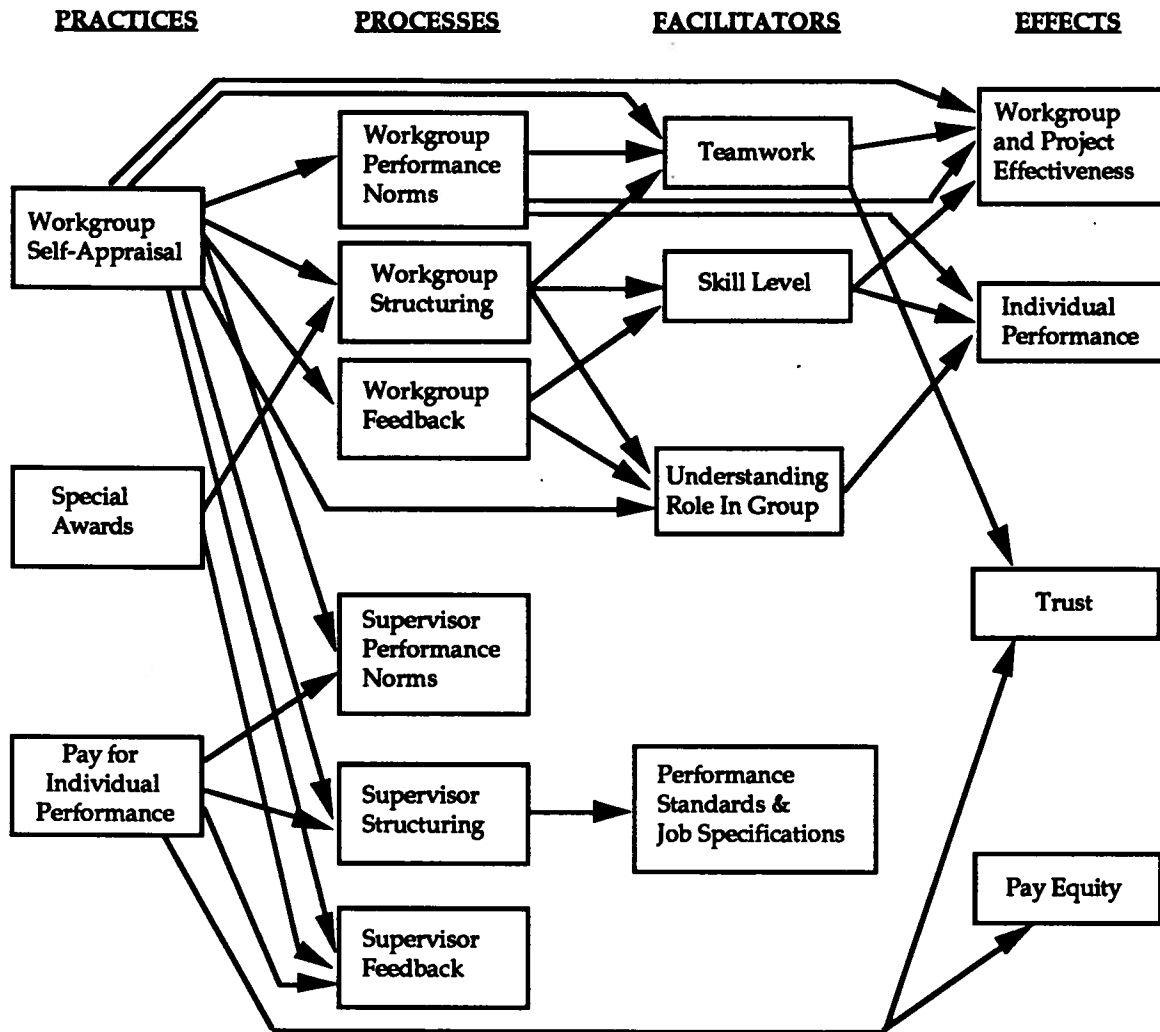
Workgroup Effectiveness and Project Effectiveness show similar relationships to the performance management variables so we combine them and their explanatory paths in figure 2 to simplify the figure. Similarly, Performance Standards and Job Specification are combined because of the similarity of their relations with the other variables.

Since our central interest in this paper is performance management practices and how they contribute to team effectiveness we discuss the findings by working from left to right across figure 2.

Special awards programs have some consistent impacts on two ongoing performance management processes, Workgroup Structuring and Supervisory Feedback. Special Awards also exhibited sporadic relationships to other process variables in single regressions (not shown) but with little strength or consistency. This pattern of impacts of Special Awards mirrors the incomplete nature with which special awards programs had been implemented in the three organizations. These programs were new in all three organizations. The fact that they are at all related to processes given their recent implementation hints at their potential performance management potency.

On the other hand, both Pay for Performance and Workgroup Self-appraisal show consistent and strong impacts on processes, but the pattern of relationships is different. Pay for performance practices consistently serve to support the three supervisor process variables. This is understandable since in all the organizations the supervisor had sole or primary input into decisions about an employee's pay. When respondents see their pay as being connected to their performance (as judged by their supervisor in a performance appraisal process) it heightens their awareness of the role of their supervisor in managing their

Figure 2
Stable Paths Across Organizations



performance. Appraisals in most organizations have in large part been formalized mechanisms to ensure supervisory feedback, goal setting, and stressing of performance norms.

The only impact, direct or indirect, that Pay for Performance has on the effectiveness variables across all three studies is on the human outcomes, Pay Equity and Trust. The functionality of pay for performance in these organizations then is two fold: when done well, it strengthens and supports the role of the supervisor in engaging in performance management behaviors; and it provides a way of distributing pay that is perceived to be equitable and that leads to trust. There is no consistent effect of Pay for Performance on group or individual performance measures. In one of the organizations, Oilco, Pay for Performance did show significant positive impacts on the workgroup processes also, and therefore has an indirect impact on

group performance. In Avionics, Inc. Pay for Performance actually shows an indirect negative relation to Project Effectiveness because the supervisor process variables that it positively affected were negatively associated with project effectiveness measures. This finding is not surprising since Avionics, Inc. used a heavily matrixed structure. Individuals tended to be matrixed into projects but their supervisors remained in their functional bases. In such a situation any practice that strengthens the influence of the supervisor is liable to do so at the expense of the project since project personnel report to different supervisors who tend to stress functionally based measures of performance.

Workgroup Self-appraisal shows a universal impact on all the process variables, both workgroup and supervisor, as well as direct effects on two of the facilitators and on Workgroup and Project Effectiveness. Workgroup Self-appraisal apparently sets up a context that fosters workgroup performance management processes but it does not do it at the expense of supervisor performance management processes. Workgroup self appraisal allows supervisor processes to be carried out in a group setting rather than in the traditional one-on-one setting associated with performance appraisals and pay for performance practices. The results show that only the workgroup practices and processes consistently influence both workgroup and project effectiveness and individual performance. Much of this impact comes through the facilitators that these processes enable. They influence teamwork which in turn facilitates workgroup and project effectiveness. They create a setting in which individuals come to understand their role in the group which in turn facilitates individual performance. These workgroup processes even help to heighten the skill level of the group members which facilitates performance both at the individual and the group level.

Two facilitators, Performance Standards and Job Specification, have no connection to any of the effectiveness variables. These facilitators are set up by supervisory structuring and goal setting processes, a mainstay component of most performance appraisal practices and supervisory roles. Given the stress that management usually puts on individual goals and job duties it is striking to see no connection to performance or effectiveness of any kind. When work groups use structuring and goal setting processes the results are not standards and specifications but teamwork, increased skills and role understanding, all of which lead to better performance. One of the reasons that individual performance standards and job specifications do not lead to performance may be their static nature and their poor fit in the dynamic interdependent settings of modern organizations.

Pay for Performance exhibits no direct impacts on individual or group performance. The pay for performance practices in these organizations were formulated based on the assumptions that the way to manage performance is through hierarchical means and through an individual performance focus. The findings bring those assumptions into question. Today's organizational environments demand an increase in team or lateral approaches to organizing. This in turn demands a different approach to performance management, one that is team based and participative.

The findings do not shed much light on the issue of compensation based on team performance. None of the organizations we studied had team based incentive compensation. The closest they came was in the

form of special awards programs that offered the possibility for ad hoc awards to either individuals or teams for outstanding performance. In all these programs, the definition of performance that merited awards was done after the fact so that the programs could not function as incentives toward specific performances. Rather, they may function as global incentives to do well (especially on special projects) because of the possibility of being recognized. Or, they may create an environment where project teams feel appreciated and rewarded for good performance. These special award practices do relate to workgroup processes and this provides evidence that instituting group and team level rewards may influence performance.

As mentioned, Oilco is an exceptional case in which Pay for Performance slightly contributes to group processes. This may occur because the organization stressed group level objectives and jointly accountable goals in its MBO-like management practices. This is the only example of teamwork- related practices found in these three organizations.

In summary, these performance management paths to effectiveness illustrate the inadequacy of the two assumptions underlying traditional performance management practices. First, none of the effective practices rely primarily on the supervisor. Second, the centrality of the work group is abundantly clear. Even an individual practice focused directly on performance, like pay for performance, does not contribute much to performance, although it is important to the equity and trust felt by employees. Pay for performance appears to be less a tool that motivates performance and more a tool for satisfying individual needs for being equitably treated.

Organizational And Measurement Issues And Responses

So far we have made a case for the necessity of organizing and managing using a more team oriented, lateral approach. The research findings illustrate the potential of team approaches and the limitations of the dominant individual approach to performance management. As organizations realize the potential of teams and teaming, there will be implications for the way they are managed. One important implication is that organizations will need to develop practices for the performance management of teams just as they have for individuals. The remainder of this paper describes some of the design challenges that will need to be addressed to develop such approaches.

Identifying and Measuring Performance Units

The need for teams and lateral organizational mechanisms arises out of interdependence, especially interdependence that is complex and reciprocal. It is becoming increasingly apparent that traditional organization logic that organizes units by functions or steps in the production or service delivery process frequently divides the organization at points of high interdependence. This presents problems when we look for measures of performance at the group level. Measures that various departments and organizational

units use to judge their own performance often are strongly influenced by the performance of other units. It is hard therefore to use these measures to properly judge the group's performance. Furthermore, improvements on measures of each of the subunits of an organization often don't translate into improvement in the measures of organizational performance (Adler, 1990), because they fail to capture systemic aspects of performance. For example, sometimes the measures only reflect how the group has performed its part of the process and do not capture how well it supports others.

This measurement problem is an indicator of interdependence among units. The solution that is often sought is to search for better measures, for instance, measures that factor out the contributions of other groups. This solution fits the analytic work breakdown paradigm of organizing, but results in sub-optimization to support the "integrity" of a reward system. A better solution may lie in creating performance units that incorporate the interdependencies into the same group. When this is done measurement is not as problematic because the team is responsible for a whole task that encapsulates the major interdependencies and can be measured in a meaningful way.

Examples of this include organizing teams around products, customers, processes, programs, and mini-enterprises. New product development, for instance, has tended to be handled as a sequential exercise starting with product definition and moving on through product design, prototyping, manufacturing, and introduction into the market. Different stages, have traditionally been handled by different organizational units that have been measured in terms of their primary responsibility. R&D, for example, tends to be measured on their own budget and schedule as well as the technical quality of the work done. Important interdependencies are ignored by this approach, however. For instance, manufacturability of the product can have a great impact on budget and schedule at the manufacturing stage but needs to be designed into the product during the design phase. Simply making manufacturability a measurement criterion for design engineers during the design phase is not sufficient because design for manufacturability is a highly interdependent task between design and manufacturing that can only be worked out in a highly interactive manner during design. Similar reciprocal interdependencies exist between marketing and design and marketing and manufacturing.

In a highly competitive world, time to market, development costs, and market acceptance are all critical strategic factors that can only be simultaneously pursued if the interdependencies they drive are met organizationally by concurrently teaming the various functions around the entire new product development cycle (Larson, 1988; Wolff, 1988). Once such a cross-functional team is created, it is possible to utilize metrics that incorporate the strategic business issues. For instance, Hewlett-Packard is actively refining the systemic notion of "break even time" (BET) to drive the necessary integration and teaming behavior in its new product development efforts. BET is essentially the time it takes from the beginning of the process until the sales revenues from the new product exactly cover all the costs of its development. It is impacted by the technical excellence of the product, its market acceptance, its manufacturing costs, and time to

market. Once the cross functional team is formed BET is a sensible metric by which to manage its performance. Without such a team there is no organizational entity to which BET can be applied.

There are other bases for reorganizing that help solve the team measurement problem. Teams are increasingly being established to focus on both internal and external customers. Oilco, for instance, is establishing such teams around customers such as service stations and credit card users. Teams consist of people representing different functions with whom the customer used to be brought into contact separately depending on the problem at the time. Customers felt bounced around and often fell through the cracks between functions. Now each team is assigned a customer base and offers an integrated multifunctional service to them. Pacific Bell and other phone companies have similarly organized around groups of customers, and base incentive rewards on the measured quality of service for that customer group. Security Pacific Bank similarly offers full financial services through customer based teams. Global measurement of how the customer based team is doing is now possible by tracking the degree to which customer needs are met. The best source of this information is the customer. It can be gathered in various ways, including periodic surveys of the customer groups. The results of such measures can be fed back for team performance management and for determining group rewards.

Teams can also be organized around processes that cut through the organization. Oilco, for instance, is organizing teams around the physical management of all its pipelines and the process of transferring the material they carry. This is made possible by automation and information technology. Geographical teams are responsible for pipelines in relatively independent regions. Teams are colocated in a nerve center from which all pipelines are operated via satellite. They can now manage their performance around overall measures of the efficiency and timeliness of the transportation process. These teams also have strong identification with customers, who are mostly other parts of Oilco, such as refineries.

The most complete approach to organizing around teams is to create mini-enterprises or mini-businesses within the larger organization. In such situations the team sees itself and manages itself as a business as much as possible. Traditional organizational measures can then be applied, but to a smaller organizational unit better able to work out interdependencies. These mini-enterprises can be organized around any of the bases we have already discussed. New products can be spun off as their own businesses. Mead, for example had done just this in starting up its new color copier business. Xerox has organized its regional sales and service organizations as enterprises. A particular organizational support function, such as organizational consulting, or word processing can sell its services to the rest of the organization (and even to outside entities) and therefore compete with outside groups providing similar services. Mini-enterprise teams can use approaches to group incentives like profit sharing and gainsharing, Xerox in fact has done just this with its sales and service organization.

Moving to team level performance management is not simply a matter of finding the right measures. Finding the right measures is inseparable from the problem of designing the right team and organizational structures. Shifting to an organization that is team based demands considerable change. Our experience is

that measurement and incentive issues tend to lag behind the actual formation of teams; sometimes, the spectre of measurement difficulties prevents organizations from seriously attempting to manage teamwork.

Creating Fit Among Organizational, Team, and Individual Performance

Our studies have alerted us to the organizational reality that trying to affect the performance of the team (and by extension, the performance of the organization) by focusing on the performance of the individual is an ineffectual approach. Appraising the performance of individuals and rewarding them for their performance no doubt has effects on what they do; however these do not appear to impact effectiveness in the organizations in our sample. The data show that individual performances are facilitated by the employees' understanding of their roles within the group. This understanding is achieved by group performance management processes. These processes also relate positively to group performance.

If there are interdependencies among team members then individual performance measures and rewards based on direct comparisons among team member performances are likely to instil competition among teammates that works against achievement of group performance (Deming, 1986). We can apply a similar argument to the team's performance vis a vis that of the organization. The team's performance should be defined and understood within the context of the larger organization. To pursue team performance on its own terms runs the risk of pursuing performance that has no relation to the desired performance of the organization.

The general principle here is that performance at any level must be defined and measured within the context of the next higher level of analysis. This is different from the common tendency to use analytic approaches to segment higher level definitions of performance into component parts and then assign those segmented definitions of performance to different performance units. The problem with this latter approach is that it often quickly reaches the point of diminishing returns because it becomes increasingly difficult to define and measure what is wanted at the level of smaller and smaller performance units. Further, with extensive division of labor, high coordination and overhead costs usually develop.

At Aerocorp one of the most positively received elements of a new performance management system that was developed subsequent to the study was that it provided for a cascading of goal setting throughout the organization. Thus individuals were able to see the goals of higher level units in the organization, such as their department's (as they were assigned to their department manager) and were involved in a process of converting those higher level goals to a definition of what their own performance had to be. This sense of how one's performance fits into the bigger picture definitely met a felt need at Aerocorp.

Not only do the performances among individuals, teams, and organizations need to fit, but individual needs must be met at the same time that team and organization performance requirements are being accomplished. The diagnostic data show that pay for performance does have a positive impact on employees' affective reactions, such as pay equity and trust, thus indicating that individual needs can be met by such a system. Unfortunately, the data do not indicate that the companies received better performance as

a result of their pay for performance systems. In our studies performance is impacted by a very different performance management dynamic; group level sharing (of feedback, structuring behaviors and performance norms).

How can a group level reward system be structured that meets individual needs but encourages the sharing required at the group level? The solution is twofold. First, teams have to be managed in a way that enables individuals to feel they can influence team performance. This can be done by providing opportunities for involvement and for team self-management. Second, the team must be managed in such a way that individual needs for recognition of excellent performance are met. Individual feedback and rewards and recognition for outstanding individual performance therefore are critical. However, because of the danger that supervisor determined individual rewards will be perceived as arbitrary and can undermine team cohesiveness, team input should be an important component of individual performance management.

Interteam Interdependence

Although teams ideally should be designed to encapsulate the greatest and most complex of the interdependencies, in most complex organizations there will also be interdependencies among teams. Setting up rewards for team performance can cause teams to focus on their own performance at the expense of the performance of other teams and especially the performance of the organization. This is exactly analogous to what can happen to individuals who are interdependent but rewarded for individual performance.

A way to respond to this issue is to manage teams as performance units, but also to use a higher level incentive based on the performance of a larger organizational unit. Thus team members could conceivably be affected by multiple incentive plans based on performance at several levels of organization. For instance, all members could get rewarded based on: their own individual performance, the performance of their team, and the performance of the organization in which the team exists. Lately we have seen an increasing number of organizations pursue just this type of nested reward and incentive plan. In one case, for instance, the separate but interdependent manufacturing plants in a corporate division have created their own gainsharing plans while the division itself created a division- level profit sharing plan.

Overlapping Membership

Because teams are being used to perform multiple activities, individuals may be members of several teams. Factory workers, for example, might be members of an autonomous work group and a quality improvement team. An engineer might be a key member of more than one product development team. A manager might be a member of a customer service team, an executive team, and a special task force.

The performance of each team has to be managed; otherwise, the benefit derived from integrating different expertises will not be achieved. Several potential approaches can be used separately or together when overlapping membership is a reality. The first is to reward at the performance level to which all of the

endeavors are contributing. For example, if all the teams are members of an organizational unit such as a division or a product line enterprise, then the performance bonus can be based on the performance of that unit as a whole. The second approach is to cumulate performance of the individual across teams. Input from each of the teams can be solicited and combined to determine an appropriate individual bonus or pay raise. Third, each team can operate with its own performance management process, including team level rewards. Employees then can be eligible for performance incentives for each of the teams of which they are members, perhaps weighted by their relative involvement on each.

Continual Change

In a dynamic world the bases for interdependence will continue to shift. Processes, products, structures, technologies, knowledge and strategic sources of competitive advantage are dynamic. The reality is one of constantly forming and reforming teams and other lateral alliances. Performance management must fit these circumstances. Often this means that performance management cycles must be relatively frequent. The timing of incentives needs to match the situation. Administratively driven pay systems that are based on a calendar year often are inappropriate. Rewards need to be administered when projects and activities are complete and when teams have reached milestones, not when the calendar says it is time.

Measurement Issues

A number of measurement issues have been raised in this discussion of the performance management of teams. A major implication is that organizations must become comfortable with a variety of measurement approaches that are applicable at different levels and in different situations. Traditional economic measures will be useful at the organizational level, and also for self-contained, independent units that can be related in a clean way to corporate performance. These would include free standing business units of various kinds. Basing incentives on economic performance at the organizational level has the advantage of aligning individual outcomes with organizational performance directly, and the disadvantage that the motivational impact is diluted by the distant line of sight (Lawler, 1990).

Economic measures have less utility for smaller units or units that are heavily interdependent with other parts of the organization. Here, measures of controllable performance elements such as labor costs, waste, and other factors that are under control of the unit and clearly related to its performance are suitable. Productivity gainsharing is an incentive system that has been shown to contribute to a sense of shared fate and teamwork as well as performance (Mitchell, Lewin, and Lawler, 1990). Its philosophical underpinning of sharing self-generated performance gains is different from the exchange logic associated with most incentive approaches. As such, gainsharing may be the key to ensuring that performance and incentive coincide because the definition of performance is identical with the source of the incentive bonus pool.

Special purpose teams such as project teams and various kinds of improvement teams and task teams have to be measured utilizing project goals that may be qualitative in nature but that capture the essence of the intended relationship between the performance of the team and the short and long term performance outcomes of the larger organization. Because of the difficulty of quantifying such measures, special awards may be a more suitable form of performance reward than an incentive scheme.

Certain measurement issues arise because organizations must simultaneously manage performance at the organization, business unit, team and individual levels. The performance management practices at each level must be nested within and compatible with the broader unit, but each level may require a different set of performance management practices, measures and rewards. The key is to base rewards on measures that are complementary and that foster the same performance values (Shuster, 1984) rather than work at cross purposes. For example, an organization may base its organization wide payouts on measures of its strategic objectives of market share, customer satisfaction and rate of new product introduction. It would then be a mistake to base the rewards of an individual team only on the technical quality of its work for that might best be achieved at the expense of considerations of time or meeting customer requirements. The measurement challenge is to find measures of the part that are complementary to the larger unit measures. In another example, there was tension within a plant that had a gainsharing plan because the plant manager's corporate bonus was in part based on being able to keep total labor costs low. A bonus paid to the workforce raised total labor costs and counted against the bonus paid to the plant manager. Multiple simultaneous rewards that pit self interests against each other create a situation where people and groups are working at cross purposes.

Important Unanswered Questions

Incentive systems at any level run the risk of focusing performance on the limited quantitative measures used in the system. A critic of American management practices (Deming, 1986) has remarked about the degree to which numerical standards have led to a state of mediocrity at the organizational level. He also claims that the same tendency leads through performance appraisal and pay for performance to mediocrity at the individual level of performance. For this reason Deming recommends the use of measures as information to improve the processes being measured and not as evaluations of the processes' outputs. Some consultants working in the establishment of new greenfield plants using team concepts and socio-technical systems methodologies also have vehemently opposed gainsharing and other incentive approaches on similar grounds. They argue that such systems destroy the intrinsic motivation set up by the high involvement structures and thus destroy the high involvement nature of the organization itself.

The validity of these claims is unclear although there is some research evidence that extrinsic rewards can reduce intrinsic motivation (Deci, 1971). On the other hand gainsharing research points in the opposite

direction. There is evidence that gainsharing can motivate more effective team coordination and improvement (Mitchell et al, 1990), perhaps this is because the size of pay-out depends on magnitude of performance improvement, not on attainment of an artificially determined target. Nevertheless the issue is a troubling one. What attributes in the design of reward and performance management systems encourage rather than discourage continued improvement and organizational learning? Answering this question may be the most important task in future research and practice in this field.

An equally important and perhaps related question is whether group level rewards and other performance management techniques will make any more of a difference in performance than individual level approaches. Our data show no indication that, in settings with high interdependencies, individual pay for performance has any impact on individual performance. As we mentioned, among the variables we measured pay for performance seems primarily to foster supervisory processes, to meet individual needs for equity, and to establish trust. This is because pay for performance is structured under the assumptions that supervisors should take primary responsibility for managing performance and that getting paid for individual performance is a fair way of paying.

Would group level rewards function similarly? Group rewards might foster group processes, whether or not group processes lead to performance. Because of the relatively undeveloped state of practice and theory of group performance management, it is too early to tell. The evidence is conflicting.

Gladstein (1984) provides evidence that suggests that fostering effective group process is not sufficient to stimulate performance. She studied over 100 sales teams and found that team members tend to see team performance as a function of internal team processes very similar to the group performance management processes in our studies. Her data indicated otherwise, that team performance in actual sales was due to an external factor, market growth. The internal group factor that contributed to performance was the degree of market orientation the team members had, not group functioning variables. When teams were rewarded based on actual sales above objectives the rewards did not serve to strengthen the team's market orientation; rather, they strengthened the team's internal performance management processes (leadership, structuring activities and interpersonal processes). This evidently occurred because team members believed such processes to be the source of their performance. At a minimum, this study suggests that team performance must be defined in relation to its customers, not just in terms of the internal processes it uses.

In our study, the fact that work group self appraisal has such a strong relationship to performance without the presence of group incentives raises another question. What additional impact on performance would be provided by group rewards? Also, can group rewards lead to better performance without the presence of group performance management processes? There is some literature that speaks to the last question. At a very macro level there is a consistent finding that various organizational-level incentive programs, such as profit sharing, gain sharing, ESOPs and the like do not show connection with improved productivity until they are accompanied by employee involvement mechanisms of some type (Blinder,

1990). These involvement mechanisms are comparable to the workgroup self appraisal practices in our study. The presence of involvement mechanisms is necessary for groups of people to perform together as a team.

Pritchard et. al. (1988) have done a controlled experiment to investigate the other side of this issue. Does adding an incentive to work group processes improve performance? They found that providing performance feedback to the group was, by itself, capable of boosting performance 50% over a productivity baseline. When involvement in goal setting was added to the feedback productivity was boosted another 25% over the original baseline. When group incentives were added the additional gain was just 1%.

It seems clear therefore that group incentive pay does not work without involvement in group involvement processes. And it may well be that group incentives add no performance increment to those created by the involvement processes. What then is the role, if any, of group incentives, and in general of group rewards? Perhaps at the group level there is a phenomenon similar to the relationship of individual pay for performance to individual perceptions of equity. As organizations move more to group and team work designs, group level pay for performance may become part of the subjective equity formula for employees. In fact, Mohrman, Ledford and Demming (1987) showed that the implementation of a gainsharing plan led to increased perceptions of equity, even though the pre-gainsharing levels of equity were already extremely high.

We have raised a number of important unanswered questions about group performance management approaches. Our data suggests that in settings with high interdependence the old individually oriented approaches offer little performance leverage. We expect to see a proliferation of the use of various team and organization level approaches. The use of such approaches is relatively unploughed ground, and there are a number of unanswered questions. Additionally, the use of such approaches is inextricably related to the work and organizational designs. Consequently, we offer a word of caution. New team level performance management approaches should be developed carefully and implemented in a manner that enables the organization to learn from the implementation, and to refine the design in an iterative process. Hopefully, the published literature about such approaches will increase rapidly, and will offer useful design frameworks. Nonetheless, the need to tailor these approaches to the company and the work it does will be paramount.

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