

DRAFT - COMMENTS WELCOME

PRODUCTIVITY:
THE INDUSTRIAL RELATIONS CONNECTION*

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Despite the extensive assistance, the views presented in this report should not be associated with any of the individuals or organizations mentioned above.

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EXECUTIVE SUMMARY
PRODUCTIVITY: THE INDUSTRIAL RELATIONS CONNECTION

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INTRODUCTION

This summary is divided into three major sections: the problem or restraint side of productivity, positive programs used by companies for improving productivity, and a discussion of several strategies that tackle the challenging task of increasing productivity on a continuing and comprehensive basis.

PRODUCTIVITY RESTRAINTS

Based on the analysis of plant level questionnaires (61 in number) plus a review of extensive information from other sources about the industrial relations components of the productivity problem, we identified three major themes: resistance to change, reduced worker motivation, and inhibiting work rules. (See Table 1.)

1. Resistance to Change - By far the most important and pervasive factor is resistance to change. The phrase does not apply as much today to outright opposition to new technology (only 5% of the firms mentioned this as a significant problem), rather to the resistance to adopting new work arrangements and to aligning the social organization to the requirements of the technology. For example, new technology is being used extensively in the office, but management is finding it difficult to do away with unnecessary labor.

Since resistance to change prevents the organization from using its technical capabilities to the fullest, it represents the biggest drag on

TABLE 1

Productivity Restraints Identified by
Respondents to Plant Survey

	<u>Number of Times Identified As a Restraint</u>
<u>Resistance to Change</u>	
*worker/supervisor resistance to change	43
first-line supervisory resistance	2
adapting to change	1
uncertainty of change	1
<u>Motivation</u>	
*absenteeism	37
attitudes	4
work ethic	1
union-management relationship	1
<u>Work Rules</u>	
*subcontracting	21
*crew size	19
*seniority	30
contractual restraints/work rules	11
<u>Paid Time Off</u>	
*paid time off	34
<u>Government Regulations</u>	
*OSHA regulations	25
other government regulations	5
<u>Business Conditions</u>	
limited resource dollars	8
volume	2
lack of sufficient information systems	1
product complexity	1
behind in technical improvements or equipment design	3
<u>Training</u>	
insufficient training programs	5
lack of technical personnel	2
<u>Other</u>	
outdated incentive pay systems	1
inability to perform time studies	2
job security	1
work stoppages	1
overtime	1
turnover	1

*Restraints listed on questionnaire

productivity. While we do not have any precise estimates, nevertheless, based on the examples that were presented in the survey, we would estimate that the impact on labor productivity over a period of several years could be as large as 40 or 50 percent.

2. Reduced Motivation - This factor represents the least important of the three broad themes. The gap that exists because a work force is not well motivated might range at any point in time between 15 and 25 percent -- the range that wage payment systems or other direct reward arrangements seek to eliminate.

One of the problems most frequently mentioned under the general heading of motivation is that of absenteeism where plants estimated that this restraint increased work force levels between two and fifteen percent.

3. Work Rule Restraints - This subject was frequently mentioned, especially for plants where unions were present. The type of work rule problem evident today falls more in the area of deployment of workers on a flexible basis. (The examples often mentioned in the literature, such as crew size problems -- what was termed in the 1960s as the "featherbedding" issue -- and the craft demarcation problem are apparently not as troublesome today as they were in the past.) We estimate that the work rule problem may impact negatively labor productivity in the range of 15 to 25 percent.

The conclusion about the negative effect of work rules (and indirectly the role of unions) needs to be placed against academic research which has found that productivity is generally higher in the presence of unions. This finding diverges from the experience of management and from the evidence in our survey. Our attempt to reconcile research with practice runs as follows:

- Productivity can be as high or higher in a unionized operation as long as the operations are stable and the volume is on a large scale. Indeed, the work rules, and the generally higher division

of labor that is found in a unionized plant, may produce higher productivity if the volume and stability are present.

- However, with the need to alter the scale and character of operations, work rules become an inhibitor to the redeployment of labor that is necessary.
- Work rules also emerge in a nonunion plant. Indeed, the principle of seniority is often used with as much weight as in unionized operations. However, management finds it easier to make the exception and to bring to play other considerations such as worker qualifications; and consequently the deployment of labor is usually done on a more flexible basis in a nonunion plant.
- While work rules can be a limiting factor to the achievement of full productivity, "times are changing" and through productivity bargaining and labor management committees, many of the inhibitors are being revised.

POSITIVE PROGRAMS

Before summarizing the major programs being used by corporations for improving productivity, we should acknowledge some organizational and measurement efforts underway to move productivity much more to the center of the corporation.

One of the most visible new areas of emphasis is productivity measurement and control. In the past year or so, many large corporations have established a position of "productivity czar," a person responsible for monitoring overall productivity growth for the corporation and instilling productivity awareness throughout the organization. Usually this new position reports to either the president or vice president, typically in the functional areas of planning, budgets, or operations (also, but less prevalent, in industrial relations or human resources).

Also included in this renewed interest in productivity is a widespread implementation or revision of corporate productivity measurements. Several corporations are using, or are in the process of developing, multi-factor measurements. However, the majority continue to use traditional forms of

labor productivity measurement, such as man hours/unit, units/employee, or revenue/employee. Whatever the measurement, an increased corporate emphasis and extensive communication campaigns have led to an enhanced sensitivity toward the productivity subject in most corporations.

SPECIFIC PROGRAMS

At this point we would like to summarize the variety of programs that are being practiced by corporations: (See Table 2)

1. New Technology - Perhaps, the most effective program for improving productivity has been the introduction of new technology, especially into manufacturing operations. As mentioned previously, many corporations are also automating the office, but as yet, this has not been found to be as effective for improving productivity.

2. Human Resource Management Techniques - For the growing white collar area of employment, companies have been resorting to methods of analysis and control such as head count management and effectiveness scrutiny (wherein staff analysts probe whether a particular function is necessary and if so how it might be done more productively.) Also, in this area would be various programs for controlling absenteeism, although, by and large, companies have not found that traditional "carrot and stick" methods are making much of a difference in lowering absenteeism.

About two-thirds of the corporations have experimented with flexible hours but none placed it in the effective category and about half rated it at the bottom of the list. This suggests that these efforts to create a more flexible arrangement for the work force do not help productivity, although they may be popular with the employees.

TABLE 2

PRODUCTIVITY IMPROVEMENT PROGRAMS

(29 Respondents to Corporate Survey)

NUMBER OF TIMES SPECIFIC PROGRAMS WERE MENTIONED

	<u>Used By Corporation</u>	<u>Most Effective Top Three</u>	<u>Least Effective Bottom Three</u>
Management Methods:			
Practices/Tools	13	8	1
Job/Organization Redesign	21	6	3
Absenteeism Control/Employee Assistance	23	3	11
Flexible Hours	16	--	8
Training:	28	12	--
Involvement:			
Quality Circles	19	3	3
Labor-Management Committees	12	3	2
Opinion Survey	17	1	8
Communications Program	5	1	--
Employee Involvement	6	4	--
Reward Systems:			
Wage Payment System	14	6	2
Awards/Suggestion Programs	10	3	3
Productivity Bargaining:	8	2	2
Technology:			
Office Automation	25	4	5
Manufacturing Automation	18	12	--
Other New Systems	7	6	--

Innovations in shift arrangements, weekend shifts, and setting up 12-hour work patterns have been more advantageous from the corporation's point of view in that they make it possible to get full utilization of capital and equipment.

By far, the most successful positive program in the human resource area, and indeed across all of the positive programs, is training. All but one corporation mentioned it as a key program and 12 placed it in the top three for effectiveness. In addition to skills type training, many corporations have sponsored short courses to enhance substantive knowledge.

3. Employee Involvement -- This subject covers a number of important topics and developments. A key mechanism is that of communication which aims to place relevant information in the hands of workers on the assumption that, once confronted with the need to improve, change will take place.

The formation of labor-management committees looks promising, even though it is too early to evaluate their effectiveness. As one of the respondents from a major manufacturing company noted: "Labor-management teams are not important 'yet' as compared to reduction in size of the work force or manufacturing automation."

A particular form of labor-management collaboration is the technology committee and there are important examples existing in the automobile industry. The purpose of these committees is to insure that the introduction of technology enhances quality of work life and that unions and workers are sufficiently informed and given a chance to discuss the impact of new technology.

Quality Circles have become a very big development. Some large corporations have hundreds of these circles in existence and the number across industry would be in the tens or perhaps hundreds of thousands. Typical savings have been estimated to approximate \$50,000 per circle.

Nevertheless, they are still not ranked as effective by comparison to other programs for improving productivity.

In general, quality of work life which includes quality circles, autonomous work groups and a variety of other ideas for tapping the know-how of workers about operations is a development that appears to be with us in full force. A number of precepts or guidelines are important:

- a. Management will have to relinquish its monopoly on knowledge. This may mean a loss of power and control and the diffusion process will take time.
- b. Decisions will take longer to make. This will be a function of both the added time to convey necessary information to all decision makers as well as the slower process of group decision making.
- c. In order to make the program succeed considerable training and education will be required at all levels of the organization. This will cost both time and money.
- d. Most likely resistance will develop. This may require special training or the need to replace middle or lower level managers who are unable or unwilling to adopt the more participatory supervisory style.

4. Wage Payment Systems - It would appear that there is substantially increased interest in contingency compensation, that is, directly relating pay to performance. Corporations are using a variety of ways of focusing attention on the benchmark or the standard to be beaten, such as subcontracting prices or costs that exist in similar plants.

A variety of arrangements are being used and developed to bring about a tighter linkage between pay and performance. Gainsharing plans which are becoming much more widespread appear to increase labor productivity (a one shot effect) by approximately 17 percent.

Profit sharing possesses the advantage of only sharing awards when the performance of a particular organization is better than its counterparts -- a very strong economic argument for this form of wage payment.

Suggestion systems are used extensively although their results and management's ranking of them for overall value is not as high as would be

expected. Approximately two-thirds of the companies surveyed had some type of formal company-wide suggestion program. The monetary award ranged from \$10 to \$100,000 based on a sharing of between 10 and 25 percent of the first year savings. However, only two of the companies listed suggestion systems as an effective productivity program. This can be amplified by the fact that, for those companies that provided results information, the savings per employee averaged about \$50 per employee per year.

A recent study of Japanese suggestion systems indicated that in 1980 they experienced a suggestion rate of 12.8 suggestions per employee. On a very limited comparison base, our survey indicated a yearly rate of approximately 0.1 per employee. However, select success stories in this country can be found to surpass the Japanese rates.

5. Reorganization of Work - With this topic we come to the subject of productivity bargaining. Basically, the rationale for this program is to bring about a realignment of the internal work organization to the requirements of the technology and the marketplace. In tabulating the content of concession agreements (another current development) approximately 30 to 40 percent of these agreements deal with changes in work rules. Generally speaking, organizations have followed the "buy out" rather than the more open-ended, organizational change approach to improving productivity through collective bargaining.

Productivity bargaining should not be utilized unless the gap that potentially can be eliminated through this process is sufficiently important to make a difference for the viability of the enterprise over the foreseeable future. Too often companies have engaged in productivity bargaining, achieved results and then subsequently shut down or cut back the operations -- resulting in substantial bitterness and dismay that comes when people "were asked to do their part, make a contribution, and then were let go."

Productivity bargaining works best when the practices to be changed can be identified and they can be removed by agreement of the parties. Work rule changes certainly fall into this category.

The closer the productivity agreement can be fashioned to the operations involved, the better the results. Agreements that state broad principles at industry level often do not bring about any changes in actual practices. Thus, plant-by-plant agreements are more effective.

The kinds of rewards that are given depend upon the circumstances. In many situations today, the real reward is survival of the plant and this can be a very powerful incentive; and nothing else may be needed if management is in a position to say that it will keep a given plant open assuming it gets certain kinds of changes. Where survival is not the motive, some financial rewards may be necessary but given the fact that the changeover represents a one-shot adaptation, then the argument can be made for having the rewards be one shot; in other words, some type of bonus paid at the time that the agreement is reached or better yet at the time that the changes are actually implemented (a type of C.O.D. arrangement). Given the fact that in many situations wages are already above competition, it may not be appropriate to pay additional rewards on a continuing basis for productivity improvements reached through collective bargaining.

6. Employment Security -- While not a positive program in its own right, the provision of some type of assurance about employment continuity can serve to increase the productivity by freeing up workers to think about involving themselves in some of the other programs mentioned in this section. The basic proposition and overriding theme is that in the absence of other arrangements for insuring adequate output (such as machine pacing, close supervision, positive incentives, and disciplinary penalties) the perception of impending unemployment will lower output or productivity.

The key contribution of an assurance about employment continuity is to

deal in an affirmative manner with worker expectations. The object is to prevent expectations about future employment from deteriorating. In research work that has been done about the impact of prospective layoffs it has been shown that labor productivity drops a minimum of two percent and in some instances much more. Consequently, if the work force can be managed through attrition and other devices of human resource management, such as voluntary separation arrangements, then these productivity slowdowns can be largely avoided.

Not all layoffs can be avoided, per se, by management's good planning. In some instances it is necessary to confront the reality of insecurity and to turn it in a positive direction. This is where the linkage often takes place between changes in work practices and management's commitment to see the operation through the difficult period, perhaps with some new investment. The enhanced job security derives from this linkage of investment and productivity improvements.

STRATEGIC THEMES

At this point we would like to attempt some closure between the problem and program side by picking up on the notion of strategies or clusters of program ideas that can be dealt with under some broad themes. In large part, the need to move to this overriding level stems from the important mismatch that appears to exist between the basic underlying problems of resistance to change, work rules and motivational difficulties and the "business as usual" programs that do not come to grips with the basic industrial relations problems that are impeding productivity improvement.

Another way to make the point is to use the currently popular term of culture. Too many organizations are characterized by a low productivity culture. The approach taken to changing the culture is piecemeal, faddish and

superficial. The strategies that we have distilled out of the field work start first with the context or the investment arrangement for the enterprise, then move to the arrangement of the work organization and the process by which technology and workers are combined, and then finally, to the level of the individual workers and the need to intensify the motivation and commitment of the organization.

Creating the Right Context for Productivity Improvement -- Given the fact that many organizations are characterized by a culture of low productivity the interesting question is the following: What are the strategic alternatives for making a sharp break with an existing pattern? The two alternatives that we have isolated involve development of a new organization (usually at a new location) versus realignment and retrofitting of the existing organization. The first works with the premise that "new beginnings" are needed to create a culture of high productivity, whereas the second works with the premise that any organization can be transformed: if proper ideas and programs are applied, then a high productivity culture can emerge out of an old culture.

The Greenfield Site Strategy -- For much of the 1960s and 1970s this strategy represented a frequent response by corporations, usually in the manufacturing sector, to the problems of a stagnated work culture. By going to a new site (usually in a section of the country where a work force could be recruited from scratch) the company gained the advantages of being able to put in place new technology, appropriate work rules and organizational arrangements, and a brand new work force that tended to be much more adaptable to the technology. Often, the new plants have been established on a socio-technical basis, making heavy use of teams and the other ideas of modern day organizational behavior. Comprehensive personnel policies have been

installed that emphasized security, egalitarian arrangements, pay for knowledge and a host of other ideas that would be characterized as the latest thinking in human resource management for high productivity.

While this strategy has proved popular and successful, it is not the only approach and other avenues are becoming more important. For one thing, the greenfield site strategy takes considerable capital that is often not available today. And while the greenfield site alternative creates a new beginning, eventually it may develop procedures and rigidities unless other things are done to prevent the development of a routinized pattern. In other words, the establishment of the new plant creates a "step up" but the challenge of continuing improvement still remains.

The Retrofit Strategy -- An approach that is becoming increasingly important is the reforming of an existing organization in the direction of a high productivity culture. Often this means scaling down a large manufacturing operation to a smaller, more manageable size, in the range of 500 to 1000 workers. The reform of the enterprise is multi-faceted. New capital is committed, changes take place in work rules and in the arrangements for the deployment of the work force, often through the mechanism of productivity bargaining. It is here where the work rule problem is confronted directly with labor and management finding a way to bring about a realignment of the internal organization. Important examples can be found in almost all of the major manufacturing industries in the United States wherein, after a process of change and sorting out, a new type of enterprise emerges. Capitalizing on the skills and experience of the existing work force, on the close relationship to a particular community and its labor supply, companies with the cooperation of unions have been able to "turn the corner" and to achieve much more viability for operations that many people would have said were irredeemable.

The Adapting Organization -- The basic problem with both the greenfield site and the retrofit alternative is that they represent "step-up" improvements but they do not in and of themselves set in motion forces for continuing adaptation. Some ideas from organizational behavior that deemphasize status distinctions, as well as the concepts of job enlargement that put in place flexible work assignments, are important for helping an organization adapt on a continuing basis. In addition, several other mechanisms are vitally important. First is the provision of employment security and the elimination of the downside influence on motivation. Second, and more on the positive side is the subject of communication which is playing an increasingly important role. One of the reasons that organizations develop a culture of low productivity is that they become parochialized and become more related to their own past than to the economic realities of the industry or the world market within which the enterprise finds itself. More and more the function of communication is to provide workers with information about costs and market alternatives so that they can comprehend the need for changes that must take pace continually, if jobs are going to be secure and if the enterprise is going to prosper over the long run.

The best examples of organizations that continue to adapt on a regular basis are to be found in Japan and to some extent in Germany. Interestingly, in both countries trade unions play a dramatically different role at the plant level than they do in the United States. Herein is a challenge for our system of industrial relations. In these two countries, the adversary system does not exist at the plant level (it may exist to some extent at the central level where the broad economic parameters are established). At the local level the role of the union is much more supportive and cooperative than is generally the case in the United States. This cooperative stance helps with the adaptation process.

The High Commitment Strategy -- This approach focuses attention on the individual and the small group, and their involvement in improving the labor productivity of the enterprise. Basically, the test of this strategy is the extent to which the human resources of the organization are being used to their fullest capacity. This means much more than eliminating absenteeism or accident costs. It goes to the training and the capability of the human resource factor in the organization and the maximization of its potential and its value to the organization. Similarly, from the viewpoint of industrial relations, it means much more than the minimization of costs due to grievances, strikes and the like. It goes to the maximization of the potential and the realization of the value of problem solving and the larger subject of labor-management cooperation.

Businessmen now talk about human resource management or industrial relations as being a second bottom line. We need to find ways to measure the capability and the performance of the human side of the organization much as we do for the technology or the physical asset side. When we are able to measure this side of the enterprise, then we will be in a position to know the extent to which it is being totally utilized or whether there is a shortfall.

The Integration of Human Resource and Industrial Relations into Key Business Decisions -- Ultimately, the strategy that brings all of the thinking that we have been developing in the paper together is the linkage of the human side of the organization to the key business decisions of the firm. For some organizations this happens as a matter of policy or commitment. For example, in these companies no decision is made that impacts upon the work side of the organization (and it is hard to think of a decision that does not have this effect) without involving the top human resource people in thinking through the implications of a proposed business decision for the human resource side of the organization. Where such commitment is not present, there is always

the danger that management will consider investment decisions and other changes in operations strictly from a financial or technical point of view. Some of this is inevitable given the short run orientation of many business decisions in the United States. One way to offset this tendency is to develop ways in which workers, either through union representation or through other mechanisms, can play a role in the linkage of the human and economic sides of the organization. We do not envision co-determination or any kind of joint decision making, but rather a linkage of the job and investment side of the organization.

Representatives of the "people side" of an organization need to present the perspective that emphasizes the preservation and enhancement of human capital rather than allowing decisions to take place that liquidate it precipitously and unfairly. The experience of Japan and Germany presents some dramatically important examples of how this linkage takes place and how the financial side of the organization is better served by the integration of human resource considerations into the economics of the businesses than is usually the case in the United States.

A number of examples are included in the report that illustrate the progress that is being made towards achieving the new integration or what some analysts have termed the new industrial relations.

CHAPTER I

AN ANALYSIS OF PRODUCTIVITY RESTRAINTS

Introduction

In this section of the report we consider the problem side of the productivity subject. As part of our data gathering program, we asked management at the plant or operating level to describe and rank the various inhibitors or restraints to greater productivity. Given the manner in which we framed the questions about productivity at the operating level and given the fact that the questionnaire was completed by management concerned with day-to-day results, the responses primarily focused on the short-run. Therefore, in this part of the report our attention will be on the micro-influences on productivity that operate at the level of a particular enterprise. Table 1 summarizes the types of productivity inhibitors cited by survey respondents. (Background on the survey as well as elaboration of the findings are contained in the Appendix.)

The Size of X-Inefficiency

In terms of the concept of X-inefficiency, it would appear that we are talking about a range that can vary up to as much as 40 or 50 percent.¹ The term X-inefficiency describes the slack that exists in an organization, in other words, the headroom between the operating efficiency that an

¹Leibenstein, Harvey, "Allocative Efficiency vs. 'X-Efficiency'," American Economic Review, LVI (June 1966), pp. 392-415. The term X-inefficiency describes the slack that exists in an organization, in other words, the headroom between the operating efficiency that an organization has reached versus the higher state of efficiency that can be realized through better management, better programs, better motivation and a wide range of ideas that we will explore in this paper.

organization has reached versus the higher state of efficiency that can be realized through better management, better programs, better motivation and a wide range of ideas that we will explore in this paper. One study of economic efficiency across 18 assembly plants of a large automobile company found the productivity index ranged from 95 to 137. These numbers were for plants producing the same product with almost identical technology.¹ The range can be even larger when one moves across different work cultures. For example, a recent article contrasted productivity for the Ford Motor Company as between its German and U.K. operations and showed a difference of almost two-to-one.² Some of this variance is due to different volume or market conditions, but industrial relations factors also play a role in the differences. For the typical plant that is operating at an average level of productivity there is often an upside potential of from 20 to 30 percent. This is in line with the outlook of industrial engineers who generally feel that if methods are improved, workers are better motivated (perhaps through the establishment of incentive systems) and in general the operations tightened up, then productivity can be improved by 20 percent. The other portion of the range comes from the down-side possibility, wherein especially poor management and worker commitment can drop a plant 20 to 30 percent below what would be considered average or acceptable levels of productivity.

¹Katz, Harry, Thomas A. Kochan and Kenneth R. Gobeille, "Industrial Relations Performance, Economic Performance and the Effects of Quality of Working Life Efforts: An Inter-Plant Analysis," January 1982, unpublished.

²New York Times, p. D1, Rattner, Steven, "A Tale of Two Ford Plants," October 13, 1981.

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<u>Paid Time Off</u>	
*paid time off	34
<u>Government Regulations</u>	
*OSHA regulations	25
other government regulations	5
<u>Business Conditions</u>	
limited resource dollars	8
volume	2
lack of sufficient information systems	1
product complexity	1
behind in technical improvements or equipment design	3
<u>Training</u>	
insufficient training programs	5
lack of technical personnel	2
<u>Other</u>	
outdated incentive pay systems	1
inability to perform time studies	2
job security	1
work stoppages	1
overtime	1
turnover	1

*Restraints listed on questionnaire

How We Plan to Organize the Subject

There are various ways to organize the extensive list of restraints which has been cited over the years in the literature and popular press. An important point to remember is that many of the restraints have been around for some time and unless a particular subject has intensified then it cannot in itself explain why there has been a recent downward trend in productivity.

The survey pointed to three major areas of concern facing today's manager -- motivational problems, resistance to change, and work rules. It strikes us that motivational issues usually appear at the individual level while resistance to change and work rules more often operate at the group or organization level. Actually, these latter subjects are two sides of the same coin. For a variety of reasons workers develop norms and customary practices to provide predictability. These arrangements can be called work rules. One function of the work rules is to make explicit the desire of the work group to remain with the status quo, in other words to resist change. This section of the report will focus on these three major areas.¹

Resistance to Change

Our survey placed resistance to change as the number one restraint. This was true across almost all demographic groups, such as large versus small, unorganized versus unionized plants, etc. However, other studies that

¹By focusing only on these three types of restraints we do not want to imply that the many other restraints mentioned by the survey respondents are of less importance in particular situations. However, these three areas appeared to be more universal across all industries. The other areas are discussed in the Appendix and briefly at the end of this chapter.

have analyzed the general disposition of workers, have pointed to worker's readiness to be redeployed and to accept change. For example, the Sentry study indicated that 74 percent of the workers are willing to work whenever help is needed in their company.¹ Another survey of 3,000 manufacturing and clerical workers across the country indicated they wanted to be more productive.²

In light of our survey findings and given the importance of introducing new technology for improving productivity, especially for manufacturing operations, it is useful to focus on a few particulars from the survey. While outright opposition to new technologies appears to have declined from about 30 percent of responses in a 1976 Conference Board Survey³ to approximately five percent of the respondents in our survey, the approach of workers and their union representatives is still limited to cautious acceptance of new technology. And with respect to the establishment of new classifications, duties, shift arrangements, i.e., the design of the new organization required by new technology, there is substantially more opposition; indeed, what might be considered outright resistance to change. In other words, the event of new technology itself is not resisted but there is difficulty in getting the social organization in line with the technical requirements; what could be called the harmonization of the socio-technical interface. This lack of

¹A Sentry Study - Perspectives on Productivity: A Global View, Conducted by Louis Harris & Associates, Inc. and Dr. Amitai Etzioni, Center for Policy Research, 1981, p. IX.

²Wall Street Journal, August 10, 1981.

³Hershfield, David C., "Barriers to Increased Labor Productivity," The Conference Board Record, July 1976. Additional data from this survey is presented in the Appendix.

accepting new technology appears to be the case for supervision as well as for non-exempt employees. A number of writers have identified the management component as a key factor in explaining resistance to change.¹

One of the most important challenges in the administration of change is in the office, with respect to the introduction of data processing. Several companies indicated that they had made extensive use of office automation but had not derived the productivity benefits that had been expected -- because the people who presumably were no longer needed still remained in the operation. As one of the large utilities made the point: "We have had plenty of technical change but we have not been able to get the savings that we anticipated because we have not been able to shrink out the personnel." Office automation promises a theoretical advantage but presents practical limitations -- a contrast that underscores the importance of administering change.

Aggravating Factors

In reviewing the possible explanations for organizations not being able to realize their full production potential, several factors loom in importance:

1. The technical requirements have moved ahead of the human capabilities of the organization. A number of articles² have appeared suggesting that as more and more technology has been introduced into different industries, the ability of the workforce to operate and maintain these sophisticated pieces of equipment has not kept pace. One dramatic example was given to us by a consulting firm. It deals with the use of bunker fuel oil in ocean-going vessels. The shift to this heavy

¹Neal, Clap, "Management Resistance to Industrial Robots," unpublished paper, 1980.

²Wall Street Journal, January 8, 1981. One of the oil companies identified the shortage of adequately trained technical personnel as a major factor holding back productivity.

crude was triggered by the oil crisis and the fact that this grade costs a lot less. However, to operate the engine rooms requires considerable sophistication and maintenance. Unfortunately, many of the crews, often drawn from underdeveloped countries, could not maintain the equipment when the new crude was being used. Consequently, a number of shipping companies have had to go back to the "drawing boards," which has meant shifting back to higher priced crudes and/or engaging in intensive recruiting and training programs to the end that engineering personnel aboard these ships can cope with the new fuel oils.

2. Management has lost some of its effectiveness -- especially the front the line supervisor. It has always been recognized that front-line supervision plays a crucial role in keeping a system operating efficiently. For a variety of reasons front line supervision is not playing as decisive a role as in the past. Some of it involves training and the same issue of competence mentioned in the preceding section. Some of it rests with the shift in authority away from the supervisor to staff groups, and in some instances to autonomous work groups. Hence, we see a dilemma between the advantages of involving workers in the solving of problems and the role and competence of the supervisor to achieve and maintain system-wide performance.
3. The measurement and reward systems used by American corporations over-emphasize short run competitiveness. This often leads to internal conflict or competition within a company's internal functions. This lack of coordination and communication can result in a cost to both the firm and the economy.

Motivational Issues

Motivation, or the lack thereof, is a subject often associated with the so-called "loss of the American work ethic." When comparing the American workers with their Japanese counterparts, many writers cite a difference in commitment or loyalty to the job or firm. It is asserted by many that today's worker represents a new breed that brings a different mix of needs and expectations to the workplace.

Labor economists use the concept of "withdrawal of supply," not just the final step of quitting but withdrawal in the form of absenteeism and low commitment -- i.e., a restriction of energy and effort applied to the task at hand. We know high commitment when we see it and we use such terms as high capacity groups, involvement, and problem solving. The reverse of good motivation is not as easy to define but we will attempt to deal with it in this section.

One of the most frequently cited behaviors that is a symptom of motivational problems is excessive absenteeism. As can be seen in Table 1, absenteeism ranked second as the most frequently mentioned inhibitor to increased productivity. There is no firm evidence to show that absenteeism has increased over the past decade, although a number of industries indicate that their rates are in the double digit range. This would be in contrast to rates that have historically been considered normal, around three or four percent per year. Since the absenteeism comes on an unplanned basis it is

difficult for management to prepare itself and to keep operations running smoothly. Also, in some situations, absenteeism is concentrated on Mondays and Fridays, thereby straining the organization to find adequate replacements.

Based on our survey, we can present some selected evidence about the size of the productivity deficit that can be traced to excessive absenteeism.

A large electronics company -- Productivity is two percent less than what it might be as a result of absenteeism.

A large steel company -- Absenteeism affects productivity negatively between one and five percent. This plant, located in Texas (new operation), experiences few other restraints.

Another steel company -- Between five and ten percent more employees are needed because of high absenteeism.

A paper converter -- Absenteeism represents the number one problem and is responsible for between a one and two percent drop in productivity.

An insurance company -- For two locations absenteeism is the number one problem. At the first location, productivity is reduced between five and ten percent and at the second location between ten and fifteen percent as a result of excessive absenteeism.

Another manifestation of low commitment can be seen in the accumulating evidence about quality problems in many industries. Indeed, quality needs to be emphasized as a dimension of the productivity problem since it is not reasonable to emphasize quality of output if quality has been sacrificed. As we will see when we move to the program side of the story, with consideration of quality circles, this subject is a very dominant theme within the broad subject of productivity improvement as it is being practiced by U.S. industry today.

In passing, we should note that we have not sought to establish a relationship between motivation and productivity more generally. Research about this connection is quite mixed and many authorities maintain there is no connection. That is to say, that adequate productivity can be achieved even

where motivation is low if the operations are such that management can require performance either through the technology or through close supervision. However, it is our feeling that there is a direct connection between motivation and absenteeism and also between motivation and the interest of workers in achieving quality results.

Causes of the Motivational Problem

Again, we are forced to identify factors that have intensified if we are to view the motivational restraint as something that has contributed to the recent productivity deficit. Several hypotheses can be advanced:

1. There may exist a weakening of the links between performance and pay. Briefly stated, the notion involved in this proposition is that when more and more pay is awarded on a basis unrelated to performance, then the motivation to apply oneself has been weakened. One of the major contributing factors is inflation with wages and salaries being advanced by cost of living clauses and other arrangements, such as annual adjustment programs -- that, for the most part, award pay increases on an across-the-board basis. In addition, compression of wage differentials between skilled and unskilled jobs has lessened the recognition and pride associated with craft occupations.
2. Another possibility and one that is more speculative involves the frequently mentioned topic of "new values." It is asserted by many people that more weight is now put on leisure and on enjoying the "good life."¹ To the extent that this is true, then there may be a tension between the values that emphasize leisure and activities outside of work and the requirements coming from new technology that make it imperative to have a workforce available on a three-shift basis and in some instances, on weekends as well. One industry where this issue will be confirmed in the foreseeable future is the banking/insurance sector. As computers are applied more and more to all aspects of the business, it will be necessary to staff the technology on around-the clock basis.

¹One of the responses to the survey volunteered the comment that "employees today prefer time off over material rewards."

Work Rules

As stated earlier, as we move to the level of the group or department we confront restraints that take on an institutional character. This is why we have used the label of work rules to capture the network of arrangements that can impede productivity. By far the most frequently mentioned category of restraints dealt with this broad subject. Time and time again, company respondents indicated that one of the serious inhibitors to improving productivity was the way in which work was organized and difficulties encountered in deploying workers effectively throughout the enterprise.

The subject of work rules is very broad. It can be broken into at least three categories. The first has to do with the quantity of labor that is utilized; sometimes referred to as a crew-size problem or in more popular terms, the feather-bedding question. A second dimension deals with the division of work into the separate classifications or craft lines. Here we confront the tension between the advantages of specialization versus flexibility. Finally, the third subject deals with the deployment of labor across the structure of occupations and classifications. This involves conditions under which workers can be transferred, how overtime is allocated, whether extra shifts are utilized, and how workers are assigned to these opportunities.

Industry Pattern for Restraints

Certain industries have been characterized by work rule difficulties. They tend to be industries where unions have been successful in organizing the industry and where craft traditions have remained strong. While other industries, especially in manufacturing, are not characterized by the same dramatic productivity problems as the "craft" industries, nevertheless many work rule problems do exist. Rather than being in the category of excess

manning, or in rigid classification lines, the problems emerge much more with respect to deployment of labor. For example, in the steel industry one of the largest companies noted difficulties in using plantwide maintenance gangs at several manufacturing facilities when the end of the shift arrived. Similarly, management was not free to continue the person doing the operation into an overtime arrangement. Rather, the low person on the overtime list had to be summoned, even though the person might not be familiar with the operation in progress. At a ship building facility, this often resulted in double manning on an overtime basis. At a refinery, workers were able to exercise seniority to choose the shift on which they worked (a non-rotating situation). Consequently, management found it very difficult to have a complement of experienced workers on the evening shifts. At an auto-parts company, the allocation of overtime had become so complicated that the management of the system had to be done by a staff specialist in industrial relations. At other facilities, the exercise of seniority for transfer purposes also proved extremely costly. In fact, it represented one of the major issues behind the long strike between International Harvester and the UAW. Many manufacturing facilities find themselves required to honor worker requests for transfers into openings and to do it on the basis of seniority.

Magnitude of the Problem

It is not necessary to spend more time illustrating the nature of the work rule problems. The newspapers provide ample illustrative material for this subject. A more interesting question is: How large, in an economic sense, are these restrictions? Estimates for the construction industry range from a negative number (that is, productivity is reportedly higher in the unionized sector than in the unorganized sector) to a high of about 25 percent

of labor costs. A mid range estimate is that work rule problems in construction probably account for about 10 to 20 percent of a productivity loss.¹ It is the case that unionized workers are better trained and consequently some of this loss is offset by good work pace and by good quality work. But in terms of a potential for improvement, the range would be of the order of 10 to 20 percent.

Historical Comparisons

It is our impression that there is less of a work rule problem with respect to feather-bedding and jurisdictional issues than was the case in the 1950s and 1960s. The article written by John Van de Water in the late 1950s summarized the extent of work restrictions at that time.² A review of NLRB and court decisions for the 1980s does not suggest anywhere near the prominence of this subject today. A further comparison comes from the survey conducted by the Conference Board in 1975.³ Respondents at the time ranked excessive manning as the number one problem 41 percent of the time, while for our sample the frequency had dropped to 31 percent of the time.

However, with respect to the category of flexible deployment of labor, it appears to be much more of a problem today than ever before. For example, two steel companies reported in very graphic language the strong resistance to any flexibility across craft lines. Our proposition is that the issue of deployment of labor has intensified more recently. As we will see when we

¹Business Week, November 9, 1981, p. 103.

²Van de Water, John R., "Industrial Productivity and the Law: A Study of Work Restriction," Virginia Law Review, Vol. 43, No. 2, February 1957.

³Hershfield, David C., Op cit.

turn to the subject of productivity bargaining, most of the restrictions that are being modified in newly negotiated agreements involve the transfer of workers and the shifting of human resources to meet changing production requirements. Work rules guiding the deployment of labor were not much of a problem as long as the technology and volume remained steady. However, with considerable economic and technical restructuring and fluctuating levels of activity, the rules that govern the human resource side of the organization eventually require revision.

Summary of Restraints

The discussion to this point has focused primarily on the three most frequently mentioned restraints - resistance to change, motivational issues, and work rules. These appeared to us to be the ones most closely linked to institutional arrangements associated with industrial relations. One additional restraint, paid time off, also ranked high on the list. However, the distinction between this subject and absenteeism is rather ambiguous. Due to lack of questionnaire specificity it is difficult to know whether this restraint refers to holidays, vacations, illness, or other personal paid time off. Therefore, we have made the assumption that many of the factors leading to increased absenteeism are also at play in increased paid time off.

The remainder of the restraints listed in Table 1 are addressed in the Appendix. The only other topic which was listed with some regularity was OSHA regulations. Because this restraint is more associated with the increased cost of government regulations (a subject which has been dealt with at great length in other forums) than with traditional industrial relations arrangements, we have chosen not to discuss it in this paper.

The remaining restraints did not appear with sufficient frequency to warrant discussion at this point. However, it is worth noting that although these restraints may not be of major concern to all corporations canvassed, the fact that they were volunteered by respondents would indicate that they are a major problem or concern to those corporations. We see the concern for investment funds to be a special case which we will address in Chapter III.

Before leaving the downside of productivity, a word needs to be said about the relationship between organized labor and productivity. The emphasis of our survey was on the institutional arrangements of industrial relations of which trade unions have traditionally been a major component. As a result, the majority of the productivity inhibitors which were identified have been associated with the labor movement. In Chapter III we will look at the debate currently going on concerning the impact of unions on productivity. At this point we will only point out that the jury is still out as to whether the impact is positive or negative.

The next chapter will shift to the positive side of the productivity equation and focus on the variety of programs which are being used to increase productivity.

CHAPTER II

POSITIVE PROGRAMS

Introduction

In this section we consider a range of productivity improvement programs. Some of the topics are quite traditional, such as management methods; some are relatively new, such as quality of work. Some are results-oriented, such as productivity bargaining, while others emphasize process, such as communication.

Once again, information obtained from the survey will be used as the basis for much of this chapter. As an overview, a summary chart of responses for productivity improvement programs is presented in Table 2. In addition to the survey information, material has been gleaned from reports and case studies. Quite a few of the sections deal with best practice and should be relevant to practitioners interested in various human resource and industrial relations programs that have the possibility of improving productivity. A few of the sections are more conceptual and present a way of thinking about key dimensions.

TABLE 2

PRODUCTIVITY IMPROVEMENT PROGRAMS

(29 Respondents to Corporate Survey)

NUMBER OF TIMES SPECIFIC PROGRAMS WERE MENTIONED

	<u>Used By Corporation</u>	<u>Most Effective Top Three</u>	<u>Least Effective Bottom Three</u>
Management Methods:			
Practices/Tools	13	8	1
Job/Organization Redesign	21	6	3
Absenteeism Control/Employee Assistance	23	3	11
Flexible Hours	16	--	8
Training:	28	12	--
Involvement:			
Quality Circles	19	3	3
Labor-Management Committees	12	3	2
Opinion Survey	17	1	8
Communications Program	5	1	--
Employee Involvement	6	4	--
Reward Systems:			
Wage Payment System	14	6	2
Awards/Suggestion Programs	10	3	3
Productivity Bargaining:	8	2	2
Technology:			
Office Automation	25	4	5
Manufacturing Automation	18	12	--
Other New Systems	7	6	--

Management Methods, Measurements, and Analyses

The most frequently mentioned set of programs can be grouped under the title of management methods, measurement and analyses. Many of these techniques have been on the scene for a long time. Hence, the question is whether this subject adds to our understanding of the problem or helps contribute to a solution. A variety of different approaches will be addressed in this section.

Productivity Coordination

One of the most visible new areas of emphasis is productivity measurement and control. In the past year or so, many large corporations have established a position of "productivity czar," who is responsible for monitoring overall productivity growth for the corporation and instilling productivity awareness throughout the organization. Usually this new position reports to either the president or vice president, typically in the functional areas of planning, budgets, or operations (also, but less prevalent, in industrial relations or human resources).

Also included in this renewed interest in productivity is a widespread implementation or revision of corporate productivity measurements. Several corporations are using, or are in the process of developing, multi-factor measurements which could fall under the label of "total factor productivity measurements." However, the majority continue to use traditional forms of labor productivity measurement, such as man hours/unit, units/employee, or revenue/employee. Whatever the measurement, an increased corporate emphasis and extensive communication campaigns have led to an enhanced sensitivity toward the productivity subject in most corporations.

Extension of Scientific Management to New Areas

A number of white collar industries have begun to utilize the techniques of Frederick Taylor. For example, the office industries, especially insurance and other large clerical companies, are extending the use of techniques such as work simplification and the establishment of time standards. A major article in Fortune talked about "How to battle your own bureaucracy--a story of the application of scientific management to a large high tech firm."¹

Another area for recent application has been warehousing operations. A number of large food chains have installed standards in their warehouses, either for workforce control purposes or as a prelude to installing incentive systems. (It should be noted that historically, work measurement often was the first step in the installation of payment-by-results systems.)

In the department of what might be called "old wine in new bottles", the current emphasis on traditional techniques involves some new labels and some new slants. For example, methods analysis, which also includes job simplification, is now approached with the philosophy of "work smarter, not harder." Rather than the emphasis being solely on the techniques of scientific management, there is more emphasis on a harmonization of the technical and social systems.

Organizational Effectiveness

Another new direction is that of effectiveness analysis, wherein staff people move around the organization and ask searching questions such as: Should we be doing this particular function?; Do we need to fill out these reports or send these letters? One large insurance company found that this

¹Fortune, June 29, 1981.

function of organizational analysis often obviated the need to do the second step of methods analysis because the conclusion (which emerged after posing the question of why are we doing this) was that it did not have to be done afterall.

The modern garb for the second step of this process, namely, measurement of standards and indicating how much work should be done by a particular person in a particular period of time, is now labeled goal setting, management by objectives, and feedback of results (compared to budget or standard). Considerable behavioral knowledge is being applied to the process of setting goals, involving people, and providing them with "knowledge of results". The literature has emphasized for a long time the point that if people participate in setting a goal and then are told how well they have done against the goal, then motivation will be much stronger.

Headcount Management

As a result of shrinking or stabilizing output levels in many industries, the management of the human resource has shifted in emphasis to reduction of the numbers employed. A variety of human resource techniques are brought to bear on the task of controlling and indeed reducing the number of workers utilized. A common label for this approach is "head count management." It is often the function of methods analysis and work measurement to establish staffing levels that would be realized by the organization for the relevant time period. The monitoring and controlling function is then performed by finance or human resources personnel. One large insurance company set the productivity goal of improving the productivity ratio by three percent each year, which in the face of stable output meant that the denominator or the number of workers employed had to be reduced by three percent each year.

In another instance, a large oil refinery, considerable emphasis was placed on controlling the number of employees, given a commitment to avoid layoffs as well as the high cost of fringes for any new workers brought onto the payroll.

Absenteeism Control

As outlined earlier, increasing absenteeism is perceived by many managers as one of the major inhibitors to productivity growth. While most of the survey respondents identified that absenteeism control programs were in use, many listed them as their least effective program. Some would argue that this problem is a sign of "soft" management practices, but the magnitude of the problem seems to indicate other underlying issues, such as changing work values and increased emphasis on leisure or family time.

Some companies are addressing this problem by improving or updating traditional systems, as one survey respondent noted:

In September, 1980, the absenteeism recording and monitoring system was converted to a computerized system. The system has reduced the amount of time spent on clerical duties and the ultimate goal, a reduction in the absenteeism rate is becoming apparent. The plant's absenteeism rate has decreased during this period.

Other companies are placing an increased emphasis on assisting employees with personal problems. Several corporations have initiated Employee Assistance Programs to assist employees with physical or emotional problems, such as alcoholism, which affects their job performance. One large consumer products manufacturer recently agreed to grant personal leave of absence to employees at intervals of one week, provided a qualified replacement is available.

Flexible Schedules

Another approach has been to change the configuration of employee work hours by establishing flexible work patterns or schedules. One large steel company noted that flex-time "has been effective in selected staff department areas in permitting employees to adjust work hours around defined core hour periods." In a survey conducted by Stanley Nollen it was estimated that at least six percent of the labor force are covered by some aspect of this method. The most frequently cited productive improvement in his survey was in the vicinity of 12%.¹ However, respondents to our survey were not as positive about the benefits of flexible work hours. When mentioned, it was usually included as one of the three least effective productivity programs.

A second innovation in changing patterns of hours is the emergence of weekend shifts. Several companies in the tire industry have hired separate groups of workers to be employed on Saturdays and Sundays on a regular basis. For the workers, it involves only 24-hours of work, but they usually receive time and a half or the equivalent of 36 hours of pay. Often, these workers hold other jobs, but the sizeable pay packet for two days work makes the arrangement attractive. The arrangement is also congenial to the weekday workers (who handle the 24-hour routines Monday through Friday) because they have their weekends free.

Another variation on this theme is the three or four-day work week which is being used in large computer operations of several corporations. The arrangement is to have four shifts cover 24 hours a day, seven days a week on a 12 hour tour basis. Days off in the middle of the week help to reduce absenteeism resulting from personal matters such as doctor appointments, court appearances, and school meetings.

¹Stanley Nollen, "Does Flex-Time Improve Productivity?" Harvard Business Review, September-October, 1979, p. 12. It should be noted that Nollen's findings are not consensual. Others have found little if any productivity improvement.

Summary

The scope of management methods, measurements and analyses is extremely broad and varied. Therefore, it is difficult to present a unitary view of the total area. As a result, we have opted to discuss only what we view to be some new emerging trends which appear to play a role in improving productivity. This topic, more than others, leads one to look at the total system and ways in which all the pieces can be fitted together to make a productive whole.

Human Resource Development

From an industrial relations perspective, there has been a major change occurring in the structure and importance of the "people" function. In the past it has been primarily viewed as a maintenance function for union relations, and the recruitment and compensation of the workforce. However, many of these functions are now coming under a new title called "Human Resource Management", which has been elevated to the top levels of the organizational heirarchy. A major emphasis in this new function has become training and development.

Twenty-eight out of 29 corporations responding to our survey identified training as one of their productivity improvement programs. Of these, 12 listed it as one of their three most effective programs. No one would begrudge the importance of training. The question, though, is one of cost effectiveness and the purpose and direction for training efforts.

Several factors have focused attention on training as a key program area. First, more and more sophisticated technology requires a more highly trained work force. Secondly, the Japanese (with their heavy emphasis on

training) have shown how important this critical ingredient is in achieving high productivity and high quality in manufacturing operations. And thirdly, changing demographics of the American work force has put an additional strain on educating and assimilating many new members of the workforce.

It is very difficult to make a distinction between training and many of the other programs for improving productivity because training represents such a critical prerequisite factor in the development and effectiveness of those programs. Training can play a critical role in a variety of different ways. In many respects training can be viewed as a socialization process to educate both new and current members of an organization in its particular way of doing things and helping to assure a desired level of organizational efficiency and productivity. Such training comes in various forms - skills or apprentice training, short refresher courses, and entry or orientation programs.

Skills Training

Probably the most common type of training used today focuses on the acquisition of new skills to perform specific tasks in different areas or functions of an organization. This includes apprenticeship training to acquire traditional craft skills or, as many organizations are now doing, the running of after-hours courses to help employees develop skills in specific areas, such as stenography and machine repair. Included in this area is also the acquisition of professional skills, such as engineering or accounting. One of the best known and most highly respected company-funded programs in this area is the General Motors Institute, which has for many years served as a source of high quality automotive engineers. A number of high technical organizations are now following suit, as with the new Wang Institute.

Another aspect of this type of training involves the development of skills to promote employees to higher levels of responsibility within the organization. Many corporations now appreciate the need to provide skills for traditionally blue-collar workers as they are being elevated or promoted to first-line supervisory positions. This also includes the entry-level management training programs of many large corporations. One of the first corporations to make extensive use of this type of program was General Electric. GE runs extensive training programs in all functions which include a minimum of two years working on assignment in a specific area of expertise. Some of the programs involve six-month assignments, usually with a rotation between different business sectors to enhance exposure to the total corporation.

Short Courses

This type of training is closely tied in with many of the programs aimed at improving the quality of worklife and enhancing employee participation. Most organizational development consultants stress the need for intensive training at all levels of the management hierarchy in order to change the culture or management style of an organization. Popular literature abounds with examples of such training. Many of these focus on the first line of management.

As an important part of a productivity improvement program at one company the capital side was increased by one billion dollars, the company felt that "the interface between front line management and the bargaining unit people would be a crucial element in making the investment pay off. To get this done, Inland has put 1600 foremen through six days of training in such subjects as "how to listen and how to resolve conflicts".

At IBM, a company long known for its unique culture, all supervisors on a regular basis spend at least a week in a formal training program.

At Shell Oil, all supervisors have been put through a three-day training

program which is part of a high commitment, high morale system that the company emphasizes.

In addition many corporations are developing system-wide programs to update their employees' skills. Two specific examples from the survey will help to illuminate these types of efforts.

1. A major steel corporation has set up extensive in-plant classroom sessions which are accompanied by instructional materials to cover a wide range of subjects, including basic accounting, cost accounting, computer terminal use, and computer programming. In addition, other programs have addressed participative management style, appraisal techniques, and enhancement of managerial skills. Although evaluation of the program has been difficult, response to the initial efforts has been very encouraging.
2. One of the large automotive parts manufacturers has set up a "quality college" through a teaching division of a major consulting organization. The purpose is to teach "quality management" i.e., minimizing errors and maximizing results by doing the job right the first time. The course stresses the prevention of errors by all functions of the company, not just the manufacturing function. The program encompasses all employees of the company from the CEO down through the hourly operator and clerk.

There has also been a renewed interest in management development training seminars for middle and executive level managers to update their quantitative and analytic skills. These programs, often conducted by business school professors, can be extremely costly. A six-day training program held for Rockwell International's top level executives, which included eleven case studies developed from real-life cases within the corporation, cost \$300,000.¹

In addition to the above types of training which have traditionally occurred in most organizations, there is now an additional need for organizations to update their skills and keep pace with the changing world of

¹Fortune, May 3, 1982.

work and technology. As new technology and equipment becomes more complicated, companies have found it necessary to institute special training programs and, in effect, to develop their own advanced apprenticeship programs. In a conceptual sense, the internal labor market is playing a much greater role relative to institutions of the external labor market which have historically supplied the talent through formal arrangements and craft referral systems. In addition, with reduced government spending many government-funded programs, such as CETA and the like, are now being taken over by private institutions.

Orientation/Cultural Training

Another type of training is what is commonly known as "learning the company politics or culture." This is specifically important for new members of an organization in order to be quickly accepted by the current employees and to be able to understand the jargon and ways of doing things within the organization. Texas instruments has found that if it spends enough time training employees at the beginning then costly turnover is reduced substantially thereafter.

This type of training is especially important for minorities and women entering organizations that have been traditionally all white and male. These new members, who are physically different, need to have a way of learning the culture of their new environment so that they can more quickly be assimilated into the organization, thereby lessening the impact of their differences.

Summary

In general one would be hard pressed to find an organization which does not have some type of training activity ongoing, either formally or

informally. However, actual cost benefit analyses are difficult to conduct. The general consensus is that training is important and that only through increased workforce knowledge and awareness of the basics of the business will organizations be able to improve productivity.

Employee Involvement to Improve Productivity

Ever since the Hawthorne studies in the 1930s managers have been torn between striving for maximum operating efficiency while at the same time being concerned about the human needs of their employees. Although empirical researchers have long argued as to whether or not increased job satisfaction will lead to greater productivity, most practitioners intuitively believe that "happy workers are productive workers." In many respects this belief is helping to fuel the current efforts to increase the involvement, and thereby the commitment of the workforce. The responses to our survey appear to mirror the growing interest in industry for such programs. At present, many of these programs are in their infancy and serious evaluation of their effectiveness has only just begun. Hence, we received a rather mixed rating as to their effectiveness in improving productivity.

Communications

An important program area is improved communications. Although this may be an end in itself, it is also a prerequisite for more elaborate forms of involvement which will be discussed next. Even by itself, improved communications can reap significant benefits. More informed employees can be viewed as more knowledgeable. This in turn can result in more congruence between worker and organization goals, enhanced quality and improved productivity. The Dana Corporation has been cited as one of the trend setters

in this area. They have conducted regular meetings to inform their workers of where the company stands and the market outlook. In addition, they have established an intensive internal system of communication which include a hot line where employees can ask any questions they desire with the answer being posted on a bulletin board. They also have developed a new format for their corporate report which is more employee oriented.

One of our survey respondents mentioned that for the past several months one of their department managers has been meeting with each employee for a one-to-one talk to discuss where the department currently stands in relation to its objectives and the employee's part in achieving that goal and any other topic which is of interest to the employee.

Participation

Many managers are beginning to recognize that their workers may be more knowledgeable in some areas of shop floor (or office) practices and procedures than the engineers who initially designed the work or put it into place. Over the past several months business journals have been filled with accounts of how labor and management are improving their relationships via various types of participation programs. For example, in a recent series of roundup articles in Fortune as well as major articles in Industry Week and Business Week a wide number of illustrations have been presented about the direct way in which the parties are improving their labor management climate. We would like to summarize some of these experiences under several key headings -- labor management committees, technology agreements, quality control circles, and autonomous work groups.

Labor Management Committees

One of the most commonly mentioned approaches is the establishment of labor-management committees that operate away from the adversarial atmosphere of normal negotiations. Although this method of improving productivity dates back to 1920s, there has been limited enthusiasm in this country, except in times of national crisis such as World War II. Indeed, the rebirth of labor-management committees today in industries such as steel and auto, may be attributed to their adverse economic environments. The underlying hypothesis for the establishment of labor-management committees is that through mutual understanding of each others problems, there will be increased goal congruence, reduced grievances, fewer work disruptions and increased productivity. Where trade unions are involved, there must be mutual recognition and agreement to keep issues of conflict, e.g. over wages and benefits, separate from those areas where both parties can work together to create a better work environment and improved productivity. This is not the place to describe all of the mechanics of how these committees are set up and operated, but in many instances they appear to be improving labor-management relationships and enhancing productivity. Two examples will suffice.

1. After a labor-management committee was set up under the auspices of the Federal Mediation and Conciliation Service (as part of their Relationship by Objective Program) productivity at United Parcel increased by 20%.¹
2. A number of dramatic improvements have occurred in the construction industry as a result of labor-management committees. Perhaps one of the most publicized is in St. Louis where an organization called Pride has fostered many positive steps. It is asserted that productivity there has increased between 10 and 15%.²

¹Rosow, Jerome M. (ed.), Productivity: Prospects for Growth, New York: D. Van Nostrand Co., 1981.

²Fortune, November 16, 1981.

The mere formation of labor-management committees is not enough in itself to guarantee good results. For example, the joint labor-management committee for retail foods has brought the parties together at the national level, but it has not realized any general agreement on some of the major challenges faced in the industry, such as automated checkout. The point here is that productivity improvement more readily occurs at the plant or operating level. Therefore, labor-management committees that operate at this level give the best evidence of success.

Many of the recently formed labor-management committees are too new to evaluate properly their degree of success. As one of the survey respondents from the steel industry noted: "Labor-management teams are not important 'yet' as compared to reduction in the size of the workforce or manufacturing automation."

Technology Agreements

A subject that is coming into prominence with increasing frequency is the joining of labor and management efforts around the challenge of new technology. This development has not gone as far in this country, as in some other countries where labor and management have formulated and agreed upon principles of how new technology will be introduced. Nevertheless, there are several important examples of labor-management cooperation in this arena.

1. Both General Motors, and Ford Motor Company in conjunction with the UAW have established technological change committees. The purpose of these committees is to insure that the introduction of technology enhances quality of worklife and that the unions and the workers are sufficiently informed and given a chance to discuss the impact of new technology. It is important to note that the UAW has always been very supportive of change and, indeed, in the language of the historic 1948 agreement it agreed to the following clause: "The annual improvement factor provided herein recognized that a continued improvement in the standard of living of employees depends upon technological process, better tools, methods, processes and equipment, and a cooperative attitude on the part of all parties in such progress."

2. During the 1980 negotiations the AT&T system agreed with its three major unions (CWA, IBEW, and the Federation) to establish joint committees on technology. These committees have just begun to meet and it is not possible to report any specific accomplishments as yet.

This present attitude is an evolution of labor's thinking about new technology. By and large the approach has always been one of cautious acceptance. The 1940s and the 1950s did see some examples where unions, especially craft unions, opposed the introduction of new technology on the docks, in newspapers, and in a limited way in construction. These hurdles have been removed and there are no major examples on the scene today where management would like to install new technology but is being prevented from doing so by overt union opposition at the national level. Unions may still be concerned about the employment consequences of new technology and will certainly ask for adequate compensation. But the issue is not being drawn about technology itself. Unions appreciate the need for new technology as was illustrated by the UAW clause and, with the increased competitive pressures that have been placed on many industries, there is an increased awareness within the highest levels of union leadership that technological change is necessary.

Quality Control Circles

Probably one of the most talked about new programs is quality control circles. The main reason for the recent explosion of interest in these programs is their low cost and ease with which managers can introduce them. Quality circles were originally introduced in Japan after World War II to heighten the quality consciousness of the workforce and to train their employees in statistical quality control analysis.

Since 1972 when Lockheed imported this technique back into this country, quality control circles have become the latest savior for the American productivity problem. However, unlike Japan where the emphasis has been on training in statistical quality techniques (thereby increasing the quality consciousness of the workforce), U.S. management has implemented quality control circles in an effort to increase participation of its workers with a focus towards increasing productivity.

Since quality control circles are often viewed as merely an extension of existing suggestion programs, they are not viewed as a threat to the authority and status of management. They are sold as a package which management can easily put into place in any environment with little or no change in existing management practices and styles. Popular literature abounds with success stories where companies have obtained significant cost savings as a result of implementing circles. Lockheed has claimed a savings of almost three million dollars in two years, or a six to one return on investment.¹ A sample review of several companies cited in recent articles reveal that average annual savings of \$56,700 per circle.² However, this level of success is quite misleading and ignores the short-term nature of these rewards.

Few companies have been able to sustain these returns for more than a year or so at best. In addition, several companies have invested heavily in starting a quality circle program and found they had to abort their efforts due to employee or union resistance. Unless there is a sincere commitment by management to listen and follow through on employee suggestions as well as a high level of trust between employees and management, many employees will view

¹Quality, May 1977, p. 14.

²List of citations available upon request.

the program as one more attempt at squeezing additional work out of them. In addition, many may fear a loss of job security for suggesting work improvements if no employment guarantees are put in place.

Resistance may also be found in the managerial and professional ranks. In many respects, worker discussion of traditionally managerial production and quality problems is one more attack on distinctiveness and integrity of professional skills. As a result a significant amount of subtle middle management resistance can undermine the implementation of these programs and often help to fuel worker resistance.

Autonomous Work Groups

Probably the most revolutionary of the quality of worklife interventions has been the emergence of autonomous or self-managing work groups. The roots of this current effort date back to the human relations school which held that if jobs are vertically enriched, then employees will be more satisfied and thereby more productive. Experiments such as Sweden's Volvo Kalmar plant led some U.S. managers to reexamine traditional ways of organizing and managing the workforce.

Success with autonomous work groups requires significant changes in both management style and practices, not only in work organizations but also in the delegation of responsibility and authority. Many employees as well as managers have difficulty with such transitions and, therefore, many of the major success stories with autonomous work groups have occurred in new plant startups. One example is the Shakely Corporation's Norman, Oklahoma plant where all employees are organized into work teams which are responsible for establishing their own production schedules, work hours, selection of new team members, peer evaluation and discipline. The company claims that they are producing the same output as older more traditional plants with forty percent

lower labor costs -- attributing two thirds of the savings to management style and the remainder to new equipment.¹

On a lesser scale, such as individual work groups, many companies have also found redesign of the work to result in increased productivity. Over a four year period Guardian Life Insurance increased productivity by one-third by giving each employee full responsibility of a client's complete file as opposed to their former assembly line approach.²

Establishment of autonomous work groups has given American trade unions a serious problem in that they eliminate many of the grievable issues concerning management of the workforce. There have also been questions raised as to the legality of such efforts in light of the loss of distinction between managerial and nonmanagerial employees.³ However, the severe economic pressure in many industries, such as automobiles, has led some unions to cooperate in several experiments.

Summary

Although a number of firms initially embarked on a program of quality of work life for reasons other than productivity this phrase has now become a catch all for numerous varieties of productivity endeavors in the United States over the past decade. Even those firms which implemented QWL programs to improve employee/management relations or quality readily admit now that increased productivity has been a welcome byproduct.

¹Business Week, May 11, 1981, p. 92.

²The Boston Globe, December 17, 1979, p. 29.

³NYU Law Journal, "Collective Authority and Technical Expertise: Reexamining the Managerial Employee Exclusion," October 1981.

In practice QWL has evolved into a variety of programs designed to create a work environment where employees have an opportunity, if they so choose, to have a voice or to participate in the decisions which affect their life at work. The basic hypothesis behind these programs has been that when employees better understand corporate problems and goals and are given an opportunity to participate in the setting of these goals or the solving of these problems, they will become more attached to the firm, feel a greater sense of personal commitment, and work harder towards achieving these goals and solving problems. Hence, improved productivity results. There has also been an attempt to break down traditional barriers between workers and management by recognizing the value of employee opinions and abilities at all levels of the hierarchy.

There exists a difference of opinion as to whether QWL programs produce merely temporary or truly long term productivity improvements. Any real success requires a genuine change in management philosophy or style from a Theory X to a Theory Y (and now Theory Z) and a climate of trust and respect between management and employees. Organizational development specialists who have designed QWL programs stress the need for gradual change and the long term nature of these efforts. Unfortunately, the pattern has more often been a sequence of immediate short-term improvements, a la the Hawthorne effect, followed by a tapering off and a return to prior states.

For a quality-of-work program to succeed a number of key precepts are involved:

1. Management will have to relinquish its monopoly on knowledge. This may mean a loss of power and control and the diffusion process will take time.

2. Decisions will take longer to make. This will be a function of both the added time to convey necessary information to all decision makers as well as the slower process of group decision making.
3. In order to make the program succeed considerable training and education will be required at all levels of the organization. This will cost both time and money.
4. Most likely resistance will develop. This may result in the need to replace middle or lower level managers who are unable or unwilling to adopt the more participatory supervisory style.

All in all, this area is probably the fastest growing of all productivity efforts and the one receiving the most positive comments from employees involved. It will take time, though, due to the long term nature of programs, to be able to evaluate adequately its total benefits.

To date the most successful programs have been focused on individual work groups or specific projects, as opposed to the overall workforce, in order to create more immediate personal involvement. However, there still remains the challenge of finding the right balance between traditional controls (rules, policies, lines of authority and ultimate responsibility for decision making) and individual involvement and autonomy. Improving the work environment (what some might call improving the quality of worklife) by dressing up the work place, providing a more benevolent boss, or implementing pre-fabricated, quick-fix package programs, will not automatically lead to increased productivity. The key is to create an environment wherein all employees are motivated to do a more efficient and effective job which thereby increases productivity.

Wage Payment Systems

The way in which money is related to performance has always been at the center of the productivity challenge. One possible explanation for the productivity deficit has been a weakening in the connection between pay and

performance as a result of COLA causes and other systems for automatically keeping workers up with the cost of living. Interestingly, in a recent survey conducted for Sentry Insurance, it was noted that 63 percent of employees are willing to have their salaries linked to personal productivity.¹

Increased Interest in Contingency Compensation

It seems clear that the future will see more compensation that is paid contingent on performance and results. One way of insuring that a productivity or performance objective is met is to make the payment of rewards contingent on the accomplishment of the stated objective. The recent automobile negotiations illustrate a move in the direction by the establishment of profit sharing programs.

This movement towards some increase in payment by results, comes after several decades wherein traditional incentive systems declined in use. In industry after industry, management where it could, abandoned individual and small group incentives in favor of measured day work. For example, a large electronics company used traditional incentives in the 1940s and 1950s for approximately 50 percent of the production and maintenance workers; this number in the 1960s has dropped to 35 percent and today it is down to 20 percent. The abandonment of "demoralized" incentive systems produced a number of important gains: generally speaking, labor relations improved as numerous grievances (that complicated incentive systems engender) diminished in volume. Also, management found it much easier to introduce advanced technology and to set up classifications when there was no issue about

¹Sentry, op cit.

incentive earnings at stake. In effect, management was saying with its adoption of measured day work: "Leave the management job to us, we'll specify the procedures and the factors of production, and all we're asking from you, the workers, is a fair day's effort."

But, in the steady movement away from traditional incentives, management has lost some of the impetus and regime that comes with any system of payment by results. In effect management found itself always looking over the shoulder of the worker to make sure that the worker was applying himself. In many instances, measured day work has represented a coercive system with substantial reliance upon discipline to ensure a fair day's work.

An often overlooked advantage of traditional incentive systems is that they foster a type of mutuality, in that, management and the workers must agree upon the methods and the price for the job. Once this agreement is reached, the system can usually run itself. Indeed, the autonomy that is present with piece work incentives is in some ways similar to the autonomy that management is reaching for with teams and other group emphases that have emerged under various quality of work programs.

The Current Picture

The current picture for the use of various incentives versus measured day work is quite complicated. There are industries such as steel that continue to make extensive use of traditional incentives and if anything appear to be applying them to all operations, even coke ovens and other parts of the operation that are paced by machinery. Even, the new "minimills" are making heavy use of incentives, although in this case the emphasis is more on group incentives or a type of gain sharing.¹

¹Savage, John, "Incentive Programs at Nucor Corporation Boost Productivity," Personnel Administrator, August 1981, p. 33.

Another heavy utilizer of piecework incentives continues to be the unionized sector of the garment industry. It has been noted that with computers it is possible to use very elaborate incentive schemes that encourage workers to move to new jobs -- during the transition, they are protected by the payment of average earnings.¹

And then there are some industries that are installing incentives for the first time. For example, the warehouse industry is establishing time standards and paying incentive earnings based on performance against these standards. Even the chemical industry, that has theretofore been thought of as not feasible territory for the use of incentives, has been experimenting with incentives. For example, one large plant in the Rocky Mountain area has a program called "Success Sharing Plan" wherein a group incentive is paid for improvements in yields. In this case, the standard is changed each year on the rationale that increased performance follows a learning curve and once a level of yields is realized this then becomes the norm (on the assumption that it should be straight forward for the work group to achieve this level of performance on a continuing basis). To some extent such a system represents a type of "running faster to keep even" system -- but, of course, if the emphasis is on "working smarter rather than harder," then the effect of such an approach is not one of speed-up but one of motivating the crew to achieve more and more out of the existing technology.

Gainsharing

The increased emphasis on contingency compensation is, in most cases, being focused on what generically could be called gainsharing plant.

¹Charles Sabel, "The Division of Labor: Its Progress through Politics," unpublished manuscript, p. 387.

Usually, the achieving unit is plant wide to emphasize team work and coordination within a large system. Often, rather than setting precise time standards, historical data are used and the group is rewarded if they improve upon past performance. The Scanlon Plan is one of the best known formulations.¹ The Rucker and Impro-Share plans are also examples of systems that fall into this category. Two of the plans noted earlier, the one for mini steel and the one for the chemical plant in the Rockies, could be included in this category of gainsharing plans.

One report of a successful introduction of gainsharing plan, of the impro-share variety, appeared in a report by the American Productivity Center. It describes a company named Corry-Jamestown, wherein the results have been impressive. Productivity increased 17.2 percent in the first year, and another 17 percent in the second year. The evaluation was that "labor and management leaders agree that the increases would have been impossible under their earlier, more adversary relationship".²

It is difficult to see any pattern of utilization in the instances where gainsharing plans are installed. In some cases, such as at Dana Corporation, they are installed in existing plants that have not used incentive systems before. In other cases, they replace traditional incentives and play the crucial role of "picking up the slack" after individual incentive systems have been abandoned. After the installation of the gainsharing plan at one large consumer products company, it took about 18 months before productivity reached levels that had existed under the earlier piecework systems. In the case of some new plants of this same company the gainsharing plans have achieved

¹Lesieur, Frederick G. and Elbridge S. Puckett, "The Scanlon Plan has proved itself," Harvard Business Review, September-October 1969.

²"How One Manufacturer Moved From Labor Tension To Productivity," The Productivity Letter, American Productivity Center, Vol. I, No. 1, April, 1981.

levels of productivity higher than have been obtained elsewhere in the company.

Although gainsharing programs have received a lot of publicity, they have not been widely installed, as of yet. Our best estimate would be that there are between 500 and 1,000 large group productivity schemes installed at the establishment level in the United States. Nevertheless, those who have used these schemes tout their effectiveness and there appears to be considerable interest in these methods for relating pay to performance. Recently, a fairly comprehensive study by the General Accounting Office entitled Gainsharing Plans concluded that on average they increased productivity about 17 percent, a healthy result.¹ E. Robert Livernash, who has followed gainsharing plans closely for several decades, has concluded that they either work quite well, or they are a "flop". Given the dynamics of group efforts, if it appears that a decent bonus is not in the offering, then the plan will not have any impact. While it will not be a drag on productivity, it will not give the upside potential as is the case when groups see the prospect of bonuses of between 10 and 12 percent, the typical range of payouts for gainsharing plans.

Profitsharing

Conceptually, profitsharing has much to recommend it. It meets the test of market performance because bonuses will only be shared if improved productivity has contributed to profits (which means that productivity has been improved more in the establishment than would be the case for the rest of the industry). Another advantage is that the standard for rewards is constantly adjusted by the test of the market.

¹U.S. General Accounting Office, "Productivity Sharing Programs: Can They Contribute to Productivity Improvement?", GAO Report #AFMD-81-22, March 3, 1981.

A major problem with gainsharing or other systems that establish an internal formula or yardstick is that rewards will continue to be paid against the standard even though external conditions have changed. An internal incentive system initially encourages the elimination of slack, but such a system often serves as a deterrent for the elimination of additional slack since bonuses are being earned and there is not any financial motivation to "go for more". All of these problems are eliminated with profitsharing.

Of course, profitsharing suffers from other problems. Profits are affected by many things beyond the control of workers inside the organization and consequently the approach may not meet the test of reliability or equity; namely, that additional worker contributions are rewarded with additional bonuses.

Obviously, there is no ideal reward system. The point is that in some situations gainsharing may be best because of its close connection to matters that workers control, while in other situations profitsharing may be preferable because of its economic viability.

Suggestion Systems

Suggestion systems have been on the scene for a long time, albeit, in a quiet way. But with the growth of quality control circles, they are re-entering the limelight. Although conceptually different, some companies are combining the two programs in an effort to stimulate worker motivation and ideas. More often, companies are just revitalizing their existing programs. As one large manufacturer stated: "The main (productivity) program we have is C.A.P. (Cost Awareness Program). This program is voluntary and all employees submit ideas to increase productivity by eliminating manpower, change in method, design of new equipment, etc. Suggestions are also submitted to reduce cost of materials. Since 1977 through 1981, 3,332 project ideas have

been accepted and implemented, 2,210 different employees had suggestions accepted."

Approximately 2/3 of the companies surveyed had some type of formal company-wide suggestion program. The monetary award ranged from \$10 to \$100,000 based on a sharing of between 10 and 25% of the first year savings. However, only two of the companies listed suggestion systems as one of their three most effective productivity program. This can be amplified by the fact that, for those companies that provided result information, the savings per employee averaged about \$50 per employee per year. Thus, suggestion systems help but do not have big payoffs.

A recent study of Japanese suggestion systems indicated that in 1980 they experienced a suggestion rate of 12.8 suggestions per employee.¹ On a very limited comparison base, our survey indicated a yearly rate of approximately 0.125 suggestions per employee. However, select success stories in this country can be found to surpass the Japanese rates. Consider an illustration from the IBM Corporation that has taken methods-improvement training one step further than most companies. At its Lexington, Kentucky office products plant, it undertook to train all employees in methods improvement. The results were impressive. The number of suggestions accepted by the company increased from 500 in the base year to 2,600 three years later. Three out of four employees turned in suggestions, and the employees received \$270,000 in awards for savings produced of over \$1,000,000. The facility has been regarded as one of their most productive.²

¹"Quality Control Circle Activities and the Suggestion System," Japan Labor Bulletin, January 1, 1982.

²Baytos, Lawrence M., "Nine Strategies for Productivity Improvement," Personnel Journal, July 1979.

Indeed, there is far from consensus on the effectiveness of suggestion systems as substantiated by the significant number (1/3) of survey respondents who did not have formal programs. The decision not to have a program was, in several cases, a well thought out decision based on experience or research, as indicated by the following two examples:

1) A large steel company cited that:

"After researching various formal employee suggestion programs used by several major corporations, it was realized that while we wanted to solicit employees' ideas, we did not want to implement a formal on-going suggestion program as we did not want to:

1. permanently increase our personnel costs by adding additional staff to administer the program;
2. establish a continuing need for on-going advertising and promotional expenses.
3. relate the award or payout to the employee directly to the cost savings that would be attributable to an employee's suggestion; and
4. lose employee interest as opposed to developing a program which would stimulate employee participation.

As a result of the above factors, we developed a contest-like program whereby we solicited ideas from eligible employees for a three-month period of time and awarded either cash or merchandise to those employees to submitted the best ideas..."

2) A large electrical product company reported:

"Employee Incentive Suggestion Plans have essentially been phased out over the past few years. They were found to be ineffective--requiring an administrative apparatus that was often more costly than the real savings generated via suggestions.

With phase-out of Suggestion Systems and associated payments, rewards would focus on writeups in plant newspapers, publicizing the employee's idea and the savings it generated in plant wide meetings, etc. In special situations, expense paid one week vacation trips have been given to employees for particularly meritorious recommendations. In general, rewards are designed not on financial grounds, but to give the employee recognition among his peers and throughout the organization of which he is a member."

Summary

It is clear that we are in a period where there is a movement of the pendulum back in the direction of incentive compensation. Incentive compensation makes it possible for a firm to bring the workforce closer to the realities of the market. One step that represents the acid test of whether an operation is effective in an economic sense is to test the cost for component operations against those that obtain from competition or those that subcontractors experience.

In this regard the history of the printing industry is instructive. Historically, the industry operated on a piecework basis and the standards were often established on a "market" basis, that is, the foreman would be given a sum of money to cover his phase of the operations. The allocation equalled the price that the publisher or employer could "farm out" the work on the outside. Thus, the method of wage payment constantly placed in front of the workforce the cost standard of what competition was able to offer. However, as the printing organizations became bigger and especially when they abandoned piecework, the relationship between the outside market alternatives and the awareness and performance of the inside workforce weakened considerably. The contract between management and the work crew was no longer to deliver a given product at a given price, but the purchase of time and availability of the workers and it was up to management to do what it could to get the best utilization of that time.

Quite significantly, when the piecework system was abandoned, the unions insisted on the establishment of the bogus rule which meant that any work that was put out to a subcontractor would have to be reworked within the shop, or at least the workers paid accordingly.

Our proposition is that the bogus rule, or this form of featherbedding would not have developed if the piecework system had remained in place and everyone had been kept aware of the "alternate price". Today, as companies confront their organizations with information about what foreign competitors are able to do, we see a cutting-through of the organizational insularity that has developed. Whether wage payments systems will actually rely upon the bids of subcontractors and the prices of competitors as the benchmarks against which to pay rewards will be an interesting possibility to follow.

Productivity Bargaining

Although productivity bargaining was not mentioned by a large number of our program respondents, we believe it deserves some discussion especially in light of our current economic environment.

The essence of productivity bargaining is the realignment of the work organization with technology and operating requirements. One can think of an organization as the internal structure of work within a technological and economic context. Often what happens is that the internal organization remains intact while the external circumstances change. In this sense, productivity bargaining helps achieve a better match between the work organization, the deployment of the workers and the technological requirements of the operation.

This history of work organizations appears to be an ebb and flow between specialization and flexibility. Productivity bargaining then becomes a means for helping shift from one design to another. In some respects the important event is change itself, which gives the organization an opportunity to sweep out the old, rather than the particular work organization that is being introduced.

Frequency of Use

Given the thesis that change comes about during periods of intense readjustment (followed by periods of stability), we would expect to find productivity bargaining appearing on the scene at regular intervals. There is some support for this proposition.

The last time when productivity bargaining was being practiced with some frequency was during the late 1950's and early 1960's. This was the time of the historic Mechanization and Modernization agreement on the West Coast docks and it was also the period when considerable attention was given to the subject as a result of a wave of activity in Britain.¹

Currently, there appears to be a surge of interest in what could be called productivity bargaining. Given the attention to "give backs" and other efforts to save jobs through concession bargaining, it is not surprising that a number of the agreements contain significant changes in work rules aimed at improving productivity. Dan Mitchell has analyzed 46 concession agreements that have appeared recently and ten of these involve changes in work rules.²

A variety of surveys also indicate that workers and their union representatives are quite receptive to using the collective bargaining process for discussing the subject of productivity. Whereas a few years ago the word productivity would have been viewed as a "no-no" term in collective

¹See Robert B. McKersie and Lawrence C. Hunter, Pay, Productivity and Collective Bargaining (London: Macmillan, 1973). In addition to the academic studies of productivity bargaining a number of articles appeared in the trade journals about the importance of work rules. For example, Dunn's Review and Modern Industry carried this statement, "Work practices may well be the key bargaining issue of the 1960's." (Volume 76, Number 4, October 1960, p. 38.)

²Daniel J.B. Mitchell, "Recent union contract concessions," paper prepared for the Brookings Panel on Economic Activity, 1982.

bargaining, such is not the case today. About a quarter of the corporations that we surveyed have made use of productivity bargaining.

One of the clearest indications that productivity bargaining is being practiced on a reasonably wide-scale basis is the fact that the recent settlements in the automobile industry have major elements that deal with changes in work rules. This is especially significant since many people have assumed that work rules were not a problem in automobiles, given the "blank check" that the UAW had given to management to mechanize and improve productivity. Indeed, as a quid pro quo for the annual improvement factor the union had committed itself to progress through technological change and improving productivity. Nevertheless, a variety of rigidities have crept into automobile operations -- these work rule problems have been highlighted by the dramatic contrast presented by Japanese factories. Consider a quote about operations within Toyota:

"Another feature that becomes clear is the company's penchant for training workers to do more than one job. The man who runs one machine switches off every few moments to run another. The man who feeds rear windows to a robot also 'tags' car shells with instructions telling workers further down the line what to install in them. This versatility allows Toyota to realign its work force more efficiently when business is bad."¹

One of the most significant clauses in the recent agreement between Ford Motors and the UAW is one that allows the local union to engage in productivity bargaining in order to save jobs.

¹The Nuts and Bolts of Japan's Factories", Wall Street Journal, March 31, 1981.

"In the event that changes in labor costs can make a difference in the reasons for a major outsourcing action, the Union shall have 30 days from the notice to propose any changes in work practices or any local deviation from the Collective Bargaining Agreement that might make it feasible for the company to continue to produce without being economically disadvantaged."¹

Productivity Bargaining Compared to Other Methods for Updating the Work Organization

Before moving on to describe some of the specific examples of productivity bargaining, it is useful to compare productivity bargaining as a mechanism for change to other methods for updating the work organization. Certainly, technological change by itself provides an opportunity to "sweep out the old" and to "bring in the new." In situations where a new generation of technology is involved, management may not need the vehicle of productivity bargaining to rearrange the work organization. However, in most situations the extent of technological change at any one point in time is not sufficiently dramatic to provide the basis for completely redesigning the work organization. For example, in the case of automobiles, mentioned above, even with the introduction of robots and other new forms of new technology, such things as craft demarcation, limitations on transferring workers across department lines and inappropriate shift arrangements remain in place and can only be changed through mutual consent. Thus, in most cases management is required to bargain through the changes rather than using new technology or a major reorganization to accomplish the result.

Productivity bargaining can also be contrasted to quality of work and other ongoing and open-ended processes that may result in changes in the way

¹Ford-UAW Agreement 1982.

in which work is organized and workers are deployed across the enterprise. Productivity bargaining tends to be more specific and to focus on changes that can be identified in negotiations. In this sense, the process is focused in time and is not a rolling agenda of change. The activity can be thought of as involving two phases, first, the identification (and with relevant parties) agreement regarding the desired changes and second the implementation of these changes.

Types of Changes

Conceptually, we can distinguish several categories of changes in work rules that are dealt with in a productivity bargaining: crewsize or manning decisions, work jurisdiction (e.g., craft lines), and the deployment of labor (overtime, transfer, and seniority rights.)

As we indicated in the earlier section dealing with restraints, crewsize problems are not as prevalent today as they were 10 or 15 years ago. A few of the companies did respond with phrases like, "we eliminated restrictive practices of manning operations with two men, when one would suffice," but for the most part the changes reached through productivity bargaining fell in the second and third categories.

Work Jurisdiction - This often involves the classic subject of craft demarcation lines and we can give a number of instances that capture the flavor of changes that are being made in this subject area.

- One large oil company has achieved the concept of zone operator, a person who is responsible for all of the operations as well as maintenance. With respect to maintenance activities when they are necessary, they are performed by a refinery mechanic, a person possessing a range of skills rather than the traditional breakdown of craft skills.
- A large auto parts company has achieved one classification for craftsmen.

- A steel company commented as follows, "We have consummated an agreement eliminating craft jurisdictional lines and combined several crafts. These changes should lead to a substantial reduction in the number of workers required."
- A company in the electrical equipment industry commented, "We have combined all trade crafts, such as bricklayer, carpenter, heavy equipment operator, into a single job description. Thereby, we eliminated the need for several crafts in order to complete a project."

Deployment of Workers - This subject can be thought of as involving flexibility in the assignment of workers both through space and time. With respect to space, several agreements have enhanced management's ability to shift workers (Japanese-style) to operating areas where their services are needed. The emphasis is on increasing the flexible deployment of labor at management's discretion and reducing worker initiated moves, such as requests for transfer.

- In the retail food industry a recent agreement has eliminated bumping to within the home store rather than across stores in the geographical area.
- The concept of inter-divisional runs in the railroad industry illustrates the flexibility of deploying people on a wider geographical basis. Rather than putting a new crew on the train at the existing division points, the railroads continue to use the same crew and obtain more useful time for the paid hours.
- The same is true with airlines, with some of the recent concession agreements enabling the carriers to schedule pilots for a longer stint during the afternoon and evening hours rather than returning them to their home base.

The ability to deploy workers to different operations is enhanced by simplifying the classification systems that have grown up in many organizations. One company commented that they had reduced 125 job progressions to 39 and correspondingly had reduced the number of job descriptions from 480 to 169 jobs. Thus, there is a greater likelihood that workers can be assigned to different tasks because their classification carries more components.

Another aspect of workforce flexibility is scheduling overtime. More and more companies are insisting on mandatory overtime and flexibility in deciding just who actually works the extra hours, i.e., abandoning the strict use of seniority in allocating overtime. Some of the productivity agreements that have been reached at the plant level in the automobile industry provide management with considerably more flexibility in scheduling overtime. Not all of these changes are made without some difficulty, however. While some of the changes that are made in hours and the scheduling of the workforce are quite minor, they can have significant productivity implications. For example, a large electronics company indicated that it had instituted overlapping shifts by ten minutes, thereby substantially increasing contact and coordination.

Results of Productivity Bargaining

Unfortunately, we have very little hard data on how effective productivity bargaining has been in achieving its stated objectives. Evidence from the earlier period, the 1960's, in this country and in Britain, would suggest that anywhere from a quarter to a half of the agreements produced substantially positive results. In another quarter of the agreements, management was not able to obtain the changes in practice that had been agreed to at the bargaining table. The remainder of the cases fell into a rather inconclusive category.

It is too early to tell how large will be the gains from the work rule changes that are being agreed to in the many concession agreements that are currently being negotiated and implemented. Given the size of some of the alterations and given the willingness of companies to commit capital and to remain in business at existing locations, the size of the productivity gains may be significant. We will return to this theme in a subsequent chapter.

Guidelines for Productivity Bargaining

Productivity bargaining should not be utilized unless the gap that potentially can be eliminated through this process is sufficiently important to make a difference for the viability of the enterprise over the foreseeable future. Too often companies have engaged in productivity bargaining, achieved results and then subsequently shut down or cut back the operations -- resulting in substantial bitterness and dismay that comes when people "were asked to do their part, made a contribution, and then were betrayed."

Productivity bargaining works best when the practices to be changed can be identified and they can be removed by agreement of the parties. Work rule changes certainly fall into this category.

The closer the productivity agreement can be fashioned to the operations involved, the better the results. Agreements that state broad principles at the industry level often do not bring about any changes in actual practices. Thus, plant-by-plant agreements are more effective.

The kinds of rewards that are given depend upon the circumstances. In many situations today, the real reward is survival of the plant and this can be a very powerful incentive, and nothing else is needed if management is in a position to say that it will keep a given plant open assuming it gets certain kinds of changes. Where survival is not the motive, some financial rewards may be necessary but given the fact that the changeover represents a one-shot adaptation, then the argument can be made for having the rewards be one-shot; in other words, some type of bonus paid at the time that the agreement is reached or better yet at the time that the changes are actually implemented (a type of C.O.D. arrangement). Given the fact that in many situations wages are already above competition, it may not make sense to pay additional rewards on a continuing basis for productivity improvements reached through collective bargaining.

Summary of Programs

As can be seen from the preceeding discussion, there is a wide variety of programs being used by American corporations. The efforts have focused on all areas and levels of the organization -- white as well as blue collar. The one remaining topic, technology, received high marks as one of the most effective areas. However, these programs have a weaker link to many of the traditional industrial relations arrangements. As a result, we have chosen to incorporate the discussion of technology and other investment decisions into a separate chapter of this paper.

After reviewing the multitude of efforts, one comes away wondering whether or not there is any real focus to the efforts. Are the programs really addressing those issues which have been identified as the major inhibitors to productivity growth, or has there been a scatter-shot effort to fix short term crises? This is a question we will address in a later chapter.

CHAPTER III

EMPLOYMENT CONTINUITY

Introduction

In this chapter we will consider the subject of employment continuity. It is a theme that emerges quite sharply from the paper by Martin Brofenbrenner dealing with the Japanese model. In our survey, we did not elicit information about employment continuity as a positive program. Indeed, none of the corporations volunteered any information about their employment policies as facilitative of productivity improvement. Nevertheless, we feel that this subject is a fundamental condition. To use the words of Baumol, it is a necessary condition for productivity improvement.

Two quotations from union and management leaders in the automobile industry can be offered at this point to underscore the importance of the fundamental relationship between the workers' outlook with respect to employment stability and various aspects of productivity, such as the adoption of new technology and the pursuit of quality of work programs.

Fraser

"The important question here (European countries) was not the spectre of being unemployed, but whether the worker felt secure in his own job, or could count on an acceptable alternative if necessary. This consideration was evident in all countries, even those socialist states which had guaranteed full employment. What bothered many workers was that they might be displaced from a position they liked and have to move to a less agreeable job or location. Assurance that this would not happen stimulated confidence that automation had benefited the workers and support for introducing new machinery and equipment."¹

¹Doug Fraser, "Employee Participation in Productivity: A Labor View," Productivity Prospects for Growth, Jerome M. Rosow, ed. (New York: D. Van Nostrand Company, 1981).

Fuller

"Employees must have a high degree of economic security. Unless employees feel they are economically secure, quality of work life has little chance of developing its full potential. In Japan, for example, which has a strong quality-of-work life program, employees are not laid off when there is a downturn in business. I think we in this country too must find innovative ways of utilizing people during economic downturns. This is critically important because we cannot expect people to immerse themselves in the organization if the threat of layoff hangs over their heads."¹

The Strategy of Employment Continuity

The pervasive effect of job insecurity on productivity is not as observable as the other inhibitors, such as lack of motivation and restrictive work rules, nevertheless, it is a fundamental force for either dragging down productivity or enabling it to reach its "natural" level. The central theme for relating the subject of job security to productivity is the following:

In the absence of other arrangements for insuring adequate output (such as machine pacing, close supervision, positive incentives, and disciplinary penalties) the perception of impending unemployment will lower output or productivity.

The basic point is that any change in expectations about job tenure will have a direct bearing on worker productivity. Over time workers develop expectations about the degree of job security that is inherent in a given employment relationship. Unemployment may be part of the situation as is the case in craft industries and in many manufacturing operations where workers are laid off subject to recall, but such insecurity can be taken in stride with no serious consequences for productivity.

¹Stephen H. Fuller, "Employee Participation in Productivity: A Management View," Productivity Prospects for Growth, Jerome M. Rosow, op. cit.

The problem for productivity develops when there is a change in expectations for the worse, usually as a result of market developments. Thus, if workers perceive the possibility of their plant being shut down or a large group of workers feel that they are vulnerable to permanent layoff, then productivity will be adversely affected.

Based on some work done by Greenhalgh and McKersie, we can say that the announcement of impending cutbacks will reduce productivity by a minimum of two percent.¹ Such a number would apply to companies like Polaroid and Xerox which have announced large cutbacks and have said that it will take a period of time to sort through who leaves on a voluntary basis (with a golden handshake program) and who is severed involuntary. Xerox announced that over the next several years it will trim its work force by 20%. More recently, Polaroid has indicated that it will be cutting 1,000 employees from its payroll. Other examples that have occurred within the recent past would involve Equitable Life Assurance and Corning Glass Company; both of these companies engaged in substantial reductions in work force during the mid to late 1970s.

From an examination of these examples, the following costs and productivity problems can be cited:

¹Greenhalgh, Leonard and Robert McKersie, "Cost Effectiveness of Alternative Strategies for Cutback Management," Public Administration Review, November/December 1980, pp. 575-84.

- Usually turnover increases substantially. For example, in the case of one of the companies just mentioned, turnover increased to 10% per annum in the wake of the announcement about impending separations. Usually, the people who leave voluntarily are the younger workers with more job opportunities (and often the best workers). In the case of another company, a number of skilled electrical engineers have already departed and headed for openings in other firms.
- A substantial drop in morale takes place throughout the organization. At the headquarters of one of these organizations, there are 500 people in the management category who will be redeployed. The individuals do not know just who will be selected. Consequently, there is great uncertainty and malaise during the period of waiting and wondering.

There are remarkably few studies that actually provide data concerning the productivity consequences of impending layoffs. There are many assertions of the following sort: "By and large, worker efficiency almost never goes up when layoffs come. Reaction is just the opposite of what you might expect."¹

The linkage between insecurity and productivity was stated very poignantly by one of the division industrial relations directors for a large company completing our questionnaire: "When employees feel insecure, the trend in productivity is down." More significantly, as we have shown in the appendix dealing with restraints, when policies for handling excess workers at the corporate level are correlated with restraints for the same corporations on a plant-by-plant basis, a strong connection exists between use of layoffs (in contrast to attrition) and restraints to productivity such as resistance to change and absenteeism. Thus, the implication is that if a company were able to modify its work force management policy to one of avoiding layoffs, then it might be expected that some of these negative factors would be reduced.

¹Wall Street Journal, August 6, 1970.

In situations where unions are present, the rule of seniority serves to protect most workers against layoffs and in this sense seniority is a positive device for immunizing senior workers from the fear that they would be affected by partial shutdowns. However, if the spectre of a total shutdown is present (as is the case today in a number of industries), then a change in expectations will affect all workers at the establishment.

The important point to emphasize is that it is a change in expectations (for the worst) that impacts negatively on productivity. In many employment relationships workers grow accustomed to patterns of work alternated by inactivity -- indeed, they may come to prefer this alternation of work and respite. One can think of the labor market as having jobs with different patterns of income and leisure and workers with different preferences. Over time, the workers and the job characteristics sort themselves out so that a given pattern of work and unemployment may be quite acceptable to a given clientele of workers. Thus, we are not saying that layoffs, in and of themselves, are dysfunctional. What we are saying is that it is a change in expectations, and not primarily expectations about temporary unemployment but expectations about permanent job loss, that is relevant for this discussion.

This distinction is important for interpreting the agreement between UAW and the Ford Motor Company which has added a number of items aimed at enhancing job security.

The Ford Example

The recent agreement between Ford Motor Company and the UAW contains a number of very interesting job security provisions that are worth summarizing at this point in the discussion.

The major program in terms of coverage is the income maintenance for workers with more than 15 years of service, this income guarantee can reach 70% of pre-tax earnings. The company has constrained its liability by several provisions which ensure that the worker will only receive the income

maintenance if other jobs in the company are not available within 50 miles and only if other work is not available to the individual in the local labor market. Thus, the company has taken a calculated risk that it will either have work for employees with more than 15 years of service or other work will be found so that its financial exposure is kept within tolerable limits.

A second concept involves experimenting with no layoffs at two, and possibly as many as four, plant locations. The objective is to say to 85% of the workers that there will be no layoffs. As a result of bringing work into the plant, work sharing and other devices for stabilizing employment, the company and the union will experiment with the concept of avoiding layoffs.

Finally, the company has pledged itself where excess workers are present to handle the shifts as much as possible by attrition.

Generally, the distinction is made throughout the new agreement as between work force fluctuations that the company has some control over (such issues as outsourcing and model changeovers) versus those changes that would be required as a result of a general drop in demand for automobiles.

The Objective of Employment Continuity

The concept of continuity of employment should be viewed as an objective or goal, rather than as a commitment. Economic circumstances may not permit the fulfillment of such a goal and this is a reason for stating it as an objective rather than as a guarantee.

It is clear that any assurance about continuity of employment has to make a meaningful difference. There is little gain if what is involved is the elimination of temporary periods of idleness when the workers affected may actually prefer such periods of unemployment. Similarly, there is little gain in talking about job insecurity if the workers and their representatives are in a position to pursue other avenues to the same end. For example, for a company to proffer assurances about continuity of employment, when the unions have been able to obtain tariff protection for the industry, is a relatively weak pronouncement.

It should be clear that our preference is for realizing economic change, but in doing so, protecting the employment continuity of the workers involved. This does not mean attachment to certain jobs, but it means maintaining career employment opportunities, to the extent practical for those on board. This certainly is the emphasis that a majority of Japanese companies bring to the employment relationship. It also characterizes the personnel policies of large companies like IBM, and Hewlett-Packard. A company can go much further in realizing continuity of employment for changes that it has some control over, such as the introduction of new technology, the impact of productivity bargaining and the potential for a quality work program. For example, assurances have been meaningful in the case of discussions about new technology between ATT and the CWA. And as a result of the recent negotiations, the company has guaranteed that no workers would be laid off as a result of the quality of work efforts and the introduction of new technology.

A basic point emanating from a number of programs such as productivity bargaining and quality of work is that satisfactory results will not be realized without dealing with the importance of employment continuity, that is, it is difficult to achieve the upside potential without guaranteeing that there will be no downside risk for the individuals involved. For example, a recent paper on the U.S. productivity problem commented as follows: "The disappointing results from the quality of work life effort were attributed to employee fears that they would be doing themselves out of jobs if they were successful in improving productivity. These fears were stimulated by the historic cyclicity of the domestic business and the absence of any assurances from management that their employment security would be protected."¹

¹Judson, Arnold, "We Have Met the Enemy and They Is Us: A Fresh Perspective on the U.S. Productivity Problem," unpublished, 1982.

Employment Security and Productivity Bargaining

Many of the assurances about continuity of employment have been given as part of the negotiations leading to a productivity deal. The company or industry in question would like to move to a new generation of technology and to revise the existing work rules. The employment guarantee comes in as a type of floor or safety net so that the workers are aware that they will be "no worse off" than before the productivity deal. The productivity deal is the exchange of better wage and benefits for the alteration of the existing situation. We can give a number of illustrations at this point.

1. The Railroad Industry. The railroad industry has seen a number of major agreements that have brought the introduction of a wide range of new technology. One author concluded, the union's ability to bargain for, and obtain, contract clauses guaranteeing reduction in force only by attrition has undoubtedly lessened the possibility of industrial strife when new technology is introduced.
2. Newspapers. In 1974, the New York Times (and other newspapers) and the International Typographical Workers Union signed an eleven-year agreement. The union gave management a free hand to introduce new technology and make any other alterations it desired in the composing room in exchange for a guarantee of lifetime employment, coupled with the indexing of wages to cost of living. As a result productivity has increased 400%.¹
3. The Construction Industry. The construction industry has talked quite often about efforts to stabilize employment as a way of reducing resistance to change. One of the best examples of this is the agreement between the Sheet Metal Workers Union and the major employers in that industry, called The Stabilization Agreement, signed in 1973, that provides the payment of up to 180 hours over a six-month period for workers whose hours fall below the average of the local. This guarantee was given in exchange for commitment to "no featherbedding."²

¹Goldberg, Joseph P., "Bargaining and Productivity in the Private Sector," in Collective Bargaining and Productivity (Madison: WI: IRRRA, 1975) p. 36.

²Goldberg, Joseph P., Op. Cit., p. 33.

4. Electrical Equipment. A study reported in 1978 that General Electric at its Lynn operations was able to introduce new technology into its drafting operation because it "placed reliance on attrition to protect the incumbents of jobs made redundant by technological change."¹

Recently, as it has become clear that many jobs are in jeopardy, because of foreign competition or because of a basic restructuring in competitive markets, the desire of workers (and to some extent the union representatives) to protect the employment base has been used as the fulcrum for improving productivity. As time passes, more and more illustrations come to the fore of what has been called concession bargaining or "saving your job through productivity improvements:"

1. Recently United Airlines has signed an agreement with the Airline Pilots Association that eliminates costly rules, such as reducing the size of the crew in the 737 cockpit from three to two pilots. In exchange for this, United guaranteed approximately 4,600 pilot jobs at current levels approximately 800 beyond their needs (it has also been reported that United will be using some of the pilots not needed for its main operations in a new subsidiary called Friendship, which is competing head-to-head with low-cost operators).
2. Similarly, the employees at Republic Airlines have agreed to a wide range of work rule concessions in return for a company pledge to hold layoffs to no more than 2% of the work force. Quite significantly, in this instance labor costs are being lowered quite drastically as a result of cuts in compensation with pay being reduced 10% for six months.

Given the travail of the automobile industry, it is not surprising that job security-driven productivity deals have been emerging with some frequency as of late. Early in November 1981, Ford Motor Company announced that two plants would be kept open as a result of the rank and file acceptance for a

¹Zager, Robert, "The Problem of Job Obsolescence: Working It Out at River Works," Monthly Labor Review, July 1978.

number of important changes. Some of the changes involved more flexibility in scheduling overtime, use of outside contractors to perform maintenance, and changing vacation rules to reduce the need for temporary workers. This particular illustration also contains elements of a new development that could be called job investment bargaining because, in addition to promising to keep the plant open, the company also committed (in the case of the Livonia transmission plant) investment in the equipment necessary to build automatic transmissions for front-wheel drive cars.

In some cases, the use of job security as a driving force for change is not done as directly as the foregoing examples would indicate. In the instance of one company, management was able to get a range of changes by saying that they needed the changes to "give the company the best shot at keeping the plant open." In other words, no guarantees were given that the company would hold the jobs in place -- rather the changes were needed so as to increase the probability, but not the certainty, of employment security.

We have been emphasizing the advantages of employment continuity as a facilitating arrangement for productivity improvement programs. By eliminating one of the fears (increasing productivity only to be laid off) the policy can be seen as a necessary prerequisite condition. The policy also exerts a beneficial effect on the management side, namely, such a policy puts pressure on management to look to the long-run in terms of activities that will help stabilize the business. This long-run orientation, in and of itself, can be supportive of productivity improvement.

Program Principles

The first precept is to take advantage of the insecurity that is always present in any employment relationship and to use it as a positive force for improving productivity, thereby enhancing the job security of the enterprise.

Thus the connection is reciprocal: it is not just eliminating job insecurity because of its drag on productivity, but actually acknowledging that some job insecurity does exist and approaching the organization in a way that informs and motivates everyone to improve the viability of the enterprise over the longer run. In the section of the report dealing with positive programs we described some of the communication efforts and other arrangements that are put in place to involve workers via economic information concerning the future of the business. In a conceptual sense, the objective is to take an offensive position with respect to job insecurity rather than having the organization react defensively, possibly realizing job retention in the short run, but in the long run jeopardizing the very viability of the enterprise.

Second, it would appear that a reduction in the size of the work force is better done by attrition¹ than by layoffs, assuming that the cutback is not large and that the transition period is no longer than a year.

Another principle, and one that is facilitative of the attrition strategy, is the active re-deployment of workers from divisions of the business that are declining to divisions of the business that have openings. This requires the willingness of workers to engage in training and to acquire new skills and possibly even to be transferred geographically. The concept is that the worker is not guaranteed a particular job, but is guaranteed employment with the company; or more specifically guaranteed an opportunity or an alternative if the current position needs to be terminated.

¹The principle of attrition has to be reconciled with the economic realities. If the displacement of workers is of such magnitude that the carrying time and the carrying costs would be prohibitive, then attrition is not a reasonable policy. Of course, in some situations the unions have the bargaining power to prevent change unless attrition is given as a concession. This would describe what has happened in railroads, newspapers and longshoring. Given the slowness of change in these industries, an organization should be cautious of outright adherence to attrition in all cases.

Several factors facilitate the re-deployment that is necessary if something approaching continuity of employment is to be realized. There may be periods of time when the size of the excess complement is such that some type of work sharing is needed until attrition takes up the slack or an increase in volume of operations occurs. Re-deployment is made easier in the absence of sharp jurisdictional lines that may be present with craft unions. Thus, for example, German companies have been able to manage work force transitions more easily than companies in the United States because of the emphasis on industrial unions that represent all workers rather than multiple unionism at the plant level, as is very much the case in Britain and to some extent the case in the United States.

The commitment to employment continuity has been implemented by Japanese companies even in the face of substantial employment cutbacks, as have occurred in shipbuilding and the steel industries, two industries that have come under severe pressure from worldwide reductions in demand. In some instances the numbers of workers involved are very large since Japanese companies follow a practice of concentrating production of a given product at one location. A variety of programs are used such as retraining, relocation, loaning of workers to other enterprises, and early retirement. The fact that they place such emphasis on making sure that the workers who are affected by change are continued in some type of employment goes a long way towards encouraging the acceptance of change and eliminating any fears that working harder will mean being without work.

The above programs and principles require considerable expertise in a field that has come to be called human resource management. Based on an analysis of best practice in Germany, it turns out that the companies that have been able to handle transitions without layoffs have been those companies where the personnel function has high standing and where there is considerable

knowledge and staff in the area of human resource planning. Unfortunately, in the United States too many companies lack the technical knowledge about the human side of the enterprise and move ahead with changes only to find substantial costs that they had never anticipated. Such companies have not been skillful in fashioning early separation programs, for in some cases these programs have been oversubscribed while in other cases they have been under-subscribed, forcing the organization into a program of involuntary separations. The state of the art is better than most companies think in terms of making predictions about which workers will do what in terms of retention and separation decisions. The point of all of this is that the "messy period" of change needs to be handled as quickly as possible and the role of human resource planning management is critical in minimizing the disruption and the deterioration of productivity.

A Balanced Perspective

Before concluding this section on employment continuity, we would like to put this policy in perspective. A policy of employment security is much more feasible as a facilitating condition for productivity bargaining or quality of work life than it is for a major restructuring that involves the shift of substantial production facilities. Thus, what may be functional for one context may not be for the other context. For example, we have placed considerable emphasis on employment security. But such an emphasis needs to be kept in perspective, for if it becomes a primary objective, then it can prevent economic restructuring and the process of change that over the long-run will lead to much better productivity. What is needed is a proper balance between economic change and cushioning the consequences for the workers involved. Germany represents a good example of balancing these interests. Britain, on the other hand, falls at one extreme of putting so

much emphasis (at least during the era of the Labor Government) on preventing job loss and protecting workers that economic change was inhibited. Perhaps, the United States has fallen at the other extreme of to some extent ignoring the human consequences thereby creating considerable resistance and turmoil.

The balance to be achieved does depend upon the extent and pace of economic restructuring. If the restructuring that is taking place is selective and can be staged over a period of several years, then the German approach makes considerable sense. However, if the change is widespread and rapid as has been the case in several U.S. manufacturing industries, then the U.S. system of severing workers may be preferable, even though there are substantial short-run costs.

The important point should not be overlooked that an occasional separation of workers may have a very beneficial impact on the organization. If seniority rules do not have to be followed assiduously, it may be possible for the company to "weed out the weak members." In fact, if done properly, an occasional cutback may give an organization a lift in productivity, to the extent that marginal employees have been let go.¹

¹In executing a cutback and in weeding out employees who are poor performers, companies typically draw a circle around the event so that others in the organization will not fear that their "turn is next." A variety of devices are used to draw such a circle: keep the decision quiet, disguise elimination of weak employees as a reorganizational move, have the departure be "voluntary," and finally, indicate to the organization that the elimination of "dead wood" had to take place and it represented a "one-time only" arrangement. In some situations the majority of the individuals in an organization may say "its about time" that certain employees were eliminated. Consequently, management finds itself doing a balancing act between eliminating poor performers and making sure there are no organization-wide consequences coming from terminations.

The Outlook

The future probably will see more attention being paid to the subject of job security. Whereas in a survey taken several years ago, only 1% of the executives saw an connection between job security and productivity, that myopia is now an historical curiosity.¹

It is clear that the powerful lesson of the Japanese system of career employment has created considerable attention and experimentation in this country.

¹In the Sentry study, only 1% of the executives thought that increasing job security would help productivity. (The number for workers, while higher at a 21% level, did not at that time reflect a widely-held belief about this relationship.) See Sentry, op. cit., pp. XII.

CHAPTER IV
STRATEGIC PERSPECTIVES

Introduction

In this chapter we would like to draw together the highlights of the earlier sections of the report and extend our thinking about various strategic options that have a connection to productivity improvement. There are many strategies for improving productivity but we will discuss only those that deal with the human resource side of the organization.

As we step back at this point in the analysis and highlight the major findings of the survey, we come to the conclusion that a very fundamental mismatch appears to exist between the restraints that were identified as key reasons for the productivity problem and the programs that companies and plants identified as being most effective.

On the one hand the major contributors to the productivity deficit all can be subsumed under the theme of change and restructuring. For example, the motivational challenge, as exemplified by an increase in absenteeism, can be attributed to a change in the demography and values of the work force. Similarly, the pervasiveness of work rule problems stems from the fact that most industries are undergoing important changes in organization and technology, and work rules which are less of a problem in a steady state condition are very troublesome as the need is presented to update and modernize. The third major factor identified in the survey, resistance to change, is the best manifestation of the point we have been making namely,

that productivity problems emerge from the inability of the existing organization, to wit the internal arrangements, to be adapted to a new environment -- this is true whether we are talking about the impact of the market place and economic pressures or the labor market and a "new breed" of employees.

Thus it is important to ponder the dichotomy between these themes of change on the problem side and the "business as usual" programs on the action side. The importance of productivity improvement programs, such as management methods and wage payment systems, suggest that in many organizations management is pursuing the improvement of productivity via traditional means. The emphasis on technology and training does suggest that programs that help the organization adapt are in the picture but the overall impression from the action side of the survey is that the programs being used are not responsive to the basic needs that most organizations face. This is best illustrated with the subject of absenteeism that ranked as a top restraint, but on the action side fell to the bottom of effective programs. Companies are experiencing increased absenteeism because of a changed mileau and a changed work force, yet their response is to use fairly traditional carrot and stick arrangements which are not proving very helpful.

One of the reasons for the mismatch between the basic problems of resistance to change, work rules, and motivation, and the various programs being used by corporations to enhance productivity is the tendency of U.S. business to respond to a crisis by looking for ready-made solutions such as quality circle programs rather than probing more deeply into structure, strategy, and process. The productivity problem has been a long time in the making and consequently programmatic responses here and there are unlikely to make very much of a difference. It is our contention that fundamental changes

in outlook, policy, and strategy are required if there is going to be a different productivity result.

Levels of Analysis

In organizing this section, we have decided to separate our discussion into three levels: the industry, the plant and the work group. The corresponding themes are technology and investment (rationalization), the design of work structures (harmonization) and the development of high commitment (intensification). Before delving into a discussion of these three strategies, a few words of introduction and comparison are appropriate. (See Table 3 for summary of main points.)

Rationalization of Investment - This theme has to do with basic business decisions about the location of capital. The thrust of new technology is a very important factor governing long-term business decisions. The forces driving the investment decision are competitive pressures emanating from the world economic and technological environment. These forces affect all companies in an industry and sooner or later if a corporation wants to survive; it will be forced to modernize its operations in some fashion or other. As we will see, the subject involves important choices or options as between the new plant (sometimes a greenfield site alternative) versus the retrofitting of an existing plant.

Industrial relations considerations are vitally involved in this choice -- for example, whether to modernize an existing plant or to move to a new facility. In turn, the manner in which capital is redeployed and the nature and extent of the dislocation involved for the workers affect the willingness of workers and their unions to go along with change. In the United States the relationship has either been arms length, that is, business leaders make

investment decisions and workers and union representatives say, "That's their business," or the relationship has been one of antagonism and protracted conflict.

The pace of change can vary quite substantially and herein lies a very important area of choice where industrial relations considerations directly join the capital and investment considerations. European countries, especially Germany, appear to have achieved an integration between the economic "must" to get on with restructuring and the human "ought" to do it in such a way that the impact on individuals is minimized.

We see the connection between investment decisions and industrial relations being mixed motive, with some conflict inevitable but also with some cooperative potential present even if not realized. Our discussion of this level and the strategy questions involved will underscore the way in which an integration of interests can be more pursued successfully by management and labor in the United States.

Design of Work Structures - With this subject we move to the middle level, to the plant or to the enterprise where the technology is in place and the challenge is to design an appropriate work organization for the given technology. The analysis of strategy at the plant level will draw heavily on our earlier discussion of productivity bargaining since this process is one of the main avenues for achieving the correct work organization. Given the fact that internal arrangements often are out of alignment with what is required by the technological environment, it is the function of productivity bargaining to achieve a new harmonization.

TABLE 3
LEVELS OF STRATEGIC ANALYSIS

	<u>Industry</u>	<u>Plant</u>	<u>Individual/Small Group</u>
Theme	Rationalization of Capital Resources	Harmonization of Work Structure	Intensification of Human Resources
Major Options	Greenfield versus Retrofit	Productivity Bargaining: Buyout Or Organizational Change	Involvement Programs Versus Administrative Change
Impetus	Changes in Technology and World Wide Economic Changes	Competitive Factors	New Values and Demographics
Productivity Potential	Large: Shift in Capital/Labor Ratio	Moderate: Elimination of X-Inefficiency	Moderate: Elimination of X-Inefficiency
Model System	Germany	U.S.	Japan

For this level of the analysis, there is no alternate industrial relations system or model that can be emulated. Historically, a key strength of the U.S. system of collective bargaining has been its ability to grapple with productivity problems through collective bargaining. Herein involved is the key subject of work rules and the role that they play in affecting productivity, both for good and for ill.

As we have shown in our regression analysis in the Appendix, the presence of work rules is very much associated with the presence of unions. Consequently, in this section of the report we will need to confront the very emotional issue of union avoidance, given the assertion by many managers that their union-free plants show much higher productivity than their organized plants.

Development of High Commitment - With this level we consider the subject that has been of primary attention throughout the discussion of involvement, namely, how to motivate the individual and the work group to perform at full potential. Against the backdrop of the many techniques and programs that organizations use to stimulate involvement on the part of individuals and groups in the pursuit of higher productivity, we would like to present a more conceptual orientation to the subject and to link activities at this level to those at the plant and industry levels. The model system for this level is that of Japan and its proven success with respect to the motivation and involvement of individual workers.

Respective Productivity Payoffs

When the question is asked about the potential payoffs coming from the different levels of analysis, the question is not easy to answer. A whole host of factors with respect to rate of technological change, availability of investment, cultural factors and the like shape the respective payoffs.

However, in general we can establish a rank order of importance. We see the largest potential in the long run emanating from industry-wide developments in the form of new capital investment, especially for those industries that have a heavy technological base. In some industries in a matter of five or six years a whole new generation of technology has been introduced and productivity has improved several fold. The next, in order of importance, would be the strategy of designing the appropriate work organization -- where over a period of several years, productivity might be improved between 30 and 40%. This estimate is derived by comparing the impact of different work organizations (for similar technologies) across comparable plants.¹ Finally, at the level of the individual and small group, the contribution is smallest in the range of 10 or 20%, the margin that is usually assumed to be available if workers can be motivated to the upmost with some type of incentive or gainsharing system.

In passing we should mention one caveat, namely because a pay off is potentially available does not say that it is easily obtainable. If capital is not available to exploit new technology, then the expected value from the highest level of decision-making with respect to new plants and new technology may be relatively low compared to eliminating outmoded workrules or installing a program for involving workers. In other words, when the feasibility side is factored in, it is not clear without specifying other particulars which strategic level will yield the most cost-effective results.

¹Katz, et. al., op. cit.

The Distinctive Connection of Industrial Relations

In a subsequent chapter we will return to the main order of business for our report, that is, identifying the special connection of industrial relations to the subject of productivity and the nature of the labor-management relationship itself. To anticipate some of the main arguments, we see more and more relationships moving in the collaborative direction under the influence of the Japanese model and as a result of the pressures coming from the current economic predicament. One of the concepts that links a collaborative relationship with work rules and with investment strategy is what we call - "job-investment bargaining," wherein through a process of labor management consultation (generally not formal bargaining) the parties agree on a package wherein additional investment is committed to the existing operation in exchange for improvements in productivity, such as the elimination of onerous work rules, abandonment of ineffective incentives and employment of labor on a round-the-clock basis in order to fully utilize the capital involved. The approach is not full-fledged co-determination, yet unions are very much involved in discussing investment decisions and their implications for employment and the long-run survival of the firm.

One of the policies that facilitates the integrative linkage is employment continuity. Here, the broad alternatives involve on the one hand viewing labor as a variable cost to be hired and let go as needed versus viewing labor as an asset to be recruited, trained, and re-deployed within the enterprise. Given the stimulus of the Japanese model, more and more firms have been considering the concept of career employment and enhancing job security for their workers. Such an approach can eliminate some of the resistance to change that is inherent when workers worry about their jobs in the face of new technology. In turn the new technology and a commitment to

invest in the operations (especially at existing locations) can enhance the economic viability of the enterprise and consequently job security. Thus we have a reinforcement between certain policies with respect to capital deployment (such as retrofitting existing operations) and approaches to the employment relationship (such as emphasizing continuity of employment).

Rationalization

Introduction

We have chosen a term frequently used in Europe to describe the process of restructuring the physical facilities of the business. The process is one that usually sweeps through an entire industry due to technological developments or cost factors that lead to a shift in the world-wide deployment of manufacturing facilities within a given industry. It is a very big subject and involves many different kinds of investment decisions. We will confine ourselves to contrasting the movement of facilities to a new location versus the modernization of facilities at an existing location. It is around these two options that industrial relations considerations are sharply focused.

The Investment Strategy of "New is Better"

In this section we would like to examine in some detail an investment strategy that attempts to meet the fundamental problem of resistance to change. As we noted in Chapter I (and amplified in the Appendix), resistance to change is a function of the age of facilities. Apparently, an aging or type of ossification process takes place in most enterprises so that over time the organization loses its adaptability. This may be due to the accumulation

of tradition or the aging of the work force or some combination of these two factors. This process takes place regardless of whether a union is on the scene.

An obvious response to this "fact of life" is for companies to "abandon the old and to emphasize the new." The establishment of a new plant also presents a company with an opportunity to choose the type of social system it would like to put in place. Many companies are installing participative, open systems in their new plants and deriving impressive results. This can be seen by the comparison contained in Table 4 which illustrates the dramatically different systems in place, as well as the contrasting productivity results, for two plants both within the same company and the same state.

TABLE 4

DOUBLE-BREASTED EMPLOYER

Industry: Manufacturing

	<u>"Traditional" Plant</u>	<u>"New System" Plant</u>
Location:	PA	PA
Size:	841	1068
Age:	100 years	10 years
Union:	Yes	No
Restraints:	1 - product change and complexity 2 - resist change 3 - crew size 4 - subcontracting 5 - seniority	None - absentee average = 1.8% - Two OSHA complaints in five years - Seniority systems reviewed yearly to keep up with technological change
New Technology Introduction:	Cautious acceptance by union leaders and members	Encouragement; over 200 changes in process since '72; many suggested by employees
Deployment of Labor:	Not very flexible	No craft lines; maintenance trained to do general maintenance; many maintenance tasks performed by laborers and productivity employees; all on salaried pay/five classifications
Programs:	- Quality Circles in progress - Negotiation agreements on wage and seniority plans - Early retirement (30 and out)	- Looking at Quality Circles - Cost Awareness Program - Retrained workers when jobs were eliminated by computerization - Elaborate committee programs
Productivity Trend:	Relatively constant	Man hours/unit reduced 40% by better schedule and coordinating process in five years

Examples of the Productivity Advantage of New Plants

Considerable publicity has been given to the advantages of moving to a "greenfield" site and there are a number of studies that document the higher productivity that is obtained when a plant is started from scratch with the latest technology and with the recruitment of a brand new work force. A few citations can be given:

1. A large tobacco company has parallel operations, one in a large urban area and another in a rural area of the South. The southern operation is just several years old while the urban operation has been at its location for decades. Productivity at the southern operation is about twice what it is at the older, urban location. Some of the differences are explained by very modern equipment, some by worker flexibility -- operators at the southern plant do much more adjustment work to operating equipment and craftsmen perform as "all around" mechanics at the new plant. However, state of the art machinery and the need to keep this sophisticated equipment operating smoothly does require a higher ratio of supervisors and technicians to operators.
2. For a large company in the electrical equipment industry, the productivity advantage of a new plant is 20% over its "mother" plant. In this case, both are located in the North, with one (the older plant) in an heavily industrialized area and the new plant in a rural location.
3. In an example from an automobile company, the productivity difference between a newer plant in the south and one in the North (older operation) is approximately 20%. The newer plant is using team concepts, as well as exploiting the latest in advanced technology.
4. Several examples of a "new organization" come from the movement of the rubber industry into radial tire production. For the most part, the radial tire facilities are at "greenfield" sites. The rubber companies have chosen to start from scratch, given the dramatically different technology involved and the need to fashion a different organization of work to handle the new technology. For example, radial tire plants do not use piece-work incentives: they tend to have fewer classifications and more flexibility for deploying workers; and they operate on a continuous (round-the-clock) basis. As a result most radial tire plants either have been introduced by new companies (Michelin) or at new sites (e.g., Mt. Vernon, IL by General Tire; Lawton, OK and Union City, TN by Goodyear;

Decatur, IL and Wilson, NC by Firestone; Ardmore, OK by Uniroyal; and Waco, Tx by General.) Where the radial tire development has been located adjacent to a conventional tire plant (Gadsten, AL of Goodyear), some retarding influences have spilled over from the old culture and it has been difficult to realize a clean break in the organization of work and outlook of workers.

5. A large company engaged in the manufacture of aircraft engines has compared productivity as between an older, urban operation and a newer rural operation. The first is unionized and the second is not. In this case, productivity is 16% better in the nonunion operation, primarily because absenteeism is only 3-4%, whereas it is double that level at the older operation. There is also a difference in capital and technology so that it is not straightforward to credit the motivational factor as solely responsible for the productivity difference.
6. In the case of a manufacturer of diesel engines, productivity in a newer, non-union operation is as high as (and beginning to surpass) the productivity in an older, union operation. Again, absenteeism in the new plant is about 3-4% whereas it is at least double that in the older operation. It has taken at least five years to bring quality at the new operation up to the levels achieved at the older operation. Another facet of the new operation is a heavy emphasis on quality of work processes. Management spends about 60% of its time facilitating the process of involvement at the new operation, whereas the percentage would be much lower for the older and more traditional operation. With respect to the dimension of unionization, the workers at the new operation -- most of them having been members of unions when they worked at other plants in this city -- have said that: "We do not want to return to a structured environment of the sort that typically is associated when unions are present." The company feels that the motivation and commitment of the workers is much higher at the new operation.
7. A direct comparison was made in one shipbuilding company between a newer and older operation -- with the former having an advantage of 50%. In this case, other variables intervened, such as a difference between a unionized status and an unorganized status, which allowed for flexibility in deploying labor across craft lines. While this factor may have explained some of the difference in productivity, management thought that a great deal of the difference was due to greater emphasis on assembly line methods in the newer plants.

8. A dramatic illustration of the difference in productivity between what can be achieved in a new "state of the art" facility and an existing tire plant can be seen in the objectives being set by Bridgestone of Japan as it explores the possibility of taking over the Firestone facility in Nashville, TN. Bridgestone estimates that the plant is seven or eight years behind in technology and that "a worthwhile challenge would be to double production with the present number of employees."¹

Advantages of Mature Plants

While there are a number of distinct advantages to new plants, the alternative of retrofitting an existing plant has some inherent advantages. For one thing, the experience inherent in an old plant may facilitate better system performance than in a new plant. This is because the "teething" period of a new plant may be quite long, especially if new sophisticated technology is required. Let us give some citations for this generalization:

1. A large semi-conductor company calculates that its productivity is as good as its competitors, that have been on the scene for only the past decade. This company is heavily unionized while its competitors are generally nonunion. It achieves its good performance through very sophisticated manufacturing engineering that makes the production process very reliable. The work force, which is quite senior, is very sophisticated and very well trained.
2. One of our case studies revealed a very interesting comparison between a new operation in the South, unorganized, and an older operation in the North, unionized, both producing similar products. In this instance, productivity is higher in the North by 10%. This is explained by an older, well seasoned work force, whereas in the South the work force is inexperienced and there is considerable turnover (in some years amounting to 50%). The manufacturing facility in the North would be characterized as low-motivation (there is substantial absenteeism) -- however, there is high attachment, (only about 5% turnover; and after a long strike virtually

¹Fortune, March 2, 1982.

every worker returned to his job) and, many work rules for the deployment of labor (no mandatory overtime and rigid application of seniority for transfers). By contrast, the operation in the South involves much more flexible deployment of labor (there are no union rules), but the advantages of flexibility are not enough to offset the human capital disadvantages of a very transient work force that is not highly trained.

Summary of the Alternatives

The contrast can be sharpened by comparing directly the alternatives of establishing a "greenfield" plant versus retrofitting an existing plant.

GREENFIELD SITE

More capital required

New workers require considerable training upgraded.

Motivation and outlook of workers more positive

Flexibility in the deployment of labor

RETROFIT

Upgrading and the introduction of a new generation of equipment.

Existing workers have considerable knowhow, but may need to be

Workers set in their ways

Considerable rigidity in the organization of work

Certainly, the establishment of a new operation may result in higher productivity, precisely because it puts in place new arrangements and squeezes out much of the "old." The opportunity for new beginnings, as we said earlier, will always be salutary, at least in terms of introducing more capital, and it will be especially invigorating if there are motivational and work rule problems that can be shed along with the old plant.

Another way to make the contrast is to underscore the difference in cultures as between the established system of an ongoing plant and the new culture of a greenfield site. Briefly stated, the established system is running, the work force trained, and if we believe in any of the advantages of institutionalization, it has a certain momentum going for it. On the other hand, the new plant will have the opportunity to shape a new culture, and to generate the enthusiasm that goes with new beginnings. Whether the new culture will gradually evolve, so that in 15 or 20 years it will have some of the same characteristics as the culture of existing plants is difficult to determine (and a question to which research should be directed).

A number of other considerations and developments intervene in selecting the strategic alternative, and it is to these contingencies that we now turn.

Technology - Clearly, technology exerts an important influence on the choice. We can distinguish two dimensions of the technology variable: site flexibility and the nature of the new generation of technology.

For some technologies such as steel, the reinvestment needs to be taken at existing locations.¹ For other technologies such as electronics, the greenfield site alternative is feasible. In between are industries such as automobile and rubber where there may be advantages to locating plants near existing plants but they are not decisive.² For industries where new

¹Significantly, large integrated steel mills are "site committed" -- but the smaller, mini-mills, have been able to realize the advantages of a clean start -- several of these new plants are located in the Sunbelt and they have fashioned industrial relations and organizational systems quite different from basic steel. For a good example, see John Savage, op. cit. pp. 33-49.

²Some companies in the automobile industry and the rubber industry have decided to locate new plants in the same labor market areas as plants being terminated. This makes it possible for workers to be carried over but it also makes it more difficult to change the social system of the new plant, since there is a strong spillover of the old culture when workers are brought over from existing plants.

technology must follow the location of former investment, these capital decisions are made without regard to the industrial relations situation existing at a particular facility. In some cases, the relationship may actually be perverse. One of the companies we contacted, told of an example at one of its large Chicago area chemical plants that had a reputation for very bad labor relations. Recently, the company decided on a major expansion of the facility, despite the poor labor relations, because of the asset base already in place and the need to have greater capacity for the Midwest market. If anything, the commitment of the new capital to the plant enabled the militant behavior of the union to go unchecked.

The other dimensions of technology relates to the nature of the change that is underway. If a sharp discontinuity is present, such as a change from conventional to radial tire production, that factor may be determining, i.e., choice of the Greenfield alternative, while if the new technology represents refinements in the existing equipment, such as the upgrading that takes place in many process industries that factor leads in the direction of the retrofit option.

Availability of Funds - The choice between a new site versus upgrading capital at an existing site is not as one-sided as it was for most of the 1960's and 1970's. With the high cost of capital (and assuming a new site requires more capital) corporations are looking much more carefully at what portion of existing operations can be upgraded. Quite significantly, a number of plant respondents volunteered the point that limited capital resources were holding back productivity. In other words, the ideas were available but the funds were not forthcoming from corporate capital budgets. In this context, the retrofit would be more feasible, compared to the greenfield site alternative.

III

Industrial Relations Considerations - The development of concession bargaining (and the linkage of workrule changes to new investment) has introduced a new element into the picture. In a number of situations recently, the connection has been made quite explicit. As we noted in our discussion of productivity bargaining, a direct link has been established between changes in operating practices and the willingness of a company to reinvest a substantial sum of money to enhance the competitive position of the enterprise. We think of this process as job-investment bargaining. Given the shockwaves that have gone through the established manufacturing sector, there appears to be a much greater willingness to get rid of old arrangements and to freshen up the atmosphere via productivity bargaining, quality of work and labor-management committees. The existing operation contains many assets, not the least of which is an experienced workforce and routines that are familiar and easily maintained.

Avoiding the Status Quo

We have framed the discussion for this section on rationalization as choosing an alternative that involves the commitment of investment funds. Before leaving this strategic level we would like to make a point that the other option of allowing operations to drift should be avoided. Many of the plants in our survey fell in the age range between 15 and 40 years. As we just noted, a number of these plants reported that they were unable to secure needed resources from central capital budgeting programs to modernize their operations. Based on other studies, it would appear that many plants in manufacturing have been allowed to deteriorate slowly. The plant and equipment are fully amortized and as long as there is demand for the product the establishment is kept in existence. The workforce may also be aging along with the equipment because new hiring has ceased.

The problem with the rundown strategy is twofold as far as productivity is concerned. First, productivity suffers directly since plant and equipment are not modernized and the establishment does not derive any benefits from a new generation of equipment. Secondly, the workforce, aware of the gradual rundown, often adopts a fatalistic attitude and develops a frame of mind of "coasting until retirement or until the plant is finally shut down."

Harmonization

Introduction

The previous section dealt with the strategy of putting in place up-to-date plant and equipment. Such a step can be viewed as creating the structure or context for the design of the appropriate work structure. The objective of harmonizing the work organization to the technological and organizational environment of the plant brings the discussion into the heartland of what most people perceive as the major connection between industrial relations and productivity, specifically, the work rule problem.

The operating issue about how to update the organization through productivity bargaining will not be discussed in this section except for one comment that should be made in passing. A distinction can be made between productivity bargaining that deals with outmoded work arrangements via a direct buy-out compared to that which is more open-ended and takes place on a continuing basis. The first approach is more akin to conventional bargaining and the use of quid pro quos, while the second resembles much more the process of organizational change and the participation of the organization in a rolling agenda of harmonization. We will have more to say about the latter process as we take up the strategy and policy questions for intensification of commitment at the level of individuals and small groups.

Unions and Productivity Restraints

The relationship between unions and productivity is a very controversial subject. Considerable disagreement exists about whether the connection is positive or negative, and whether it depends upon other intervening variables. On the one hand there is the view, supported by academic research, that unions can lead to higher labor productivity. One of the explanations is that since unions usually raise wage rates, companies, in response, mechanize and hire higher quality workers, all of which contribute to better labor productivity. This sequence has been referred to as the "shock effect:" the pressure presented by unions motivates management to take steps to offset the higher costs and restrictions of unions, with the net result being higher labor productivity (although, not higher productivity when measured in a total factor sense).

The academic work that has been done in support of the "shock effect" theory has been centered on several industries, specifically cement¹ and construction.² It was concluded that productivity may be anywhere from 20 to 30 percent higher in unionized operations compared to un-organized operations. The higher productivity may be a matter of survival because the unionized sector pays wage and fringes that are also higher by a margin of 20 to 30 percent.

¹Clark, Kim, B., "The Impact of Unionization on Productivity: A Case Study," Industrial and Labor Relations Review, July, 1980, pp. 451-469.

²Bourden, Clint, Union and Open Shop Construction (Lexington, MA: Lexington Books, 1980).

The opposing view, mainly espoused by management, is that unions and their accompanying restrictions lead to lower productivity. The point is often made by proponents of this perspective that the industries that appear to be in the most trouble in terms of productivity are the very industries where unions enjoy extensive representation rights. Usually, the argument is underscored by the following type of analysis: "We have just opened a new plant and it is operating on a nonunion basis and productivity is at least 20 percent higher than in a comparable union plant." In several instances where decertifications had taken place, management has commented with enthusiasm about its ability to operate the plants and deploy the workforce without reference to rules that get in the way of productivity. A large chemical company talked about the many flexibilities that it enjoyed without the union, e.g., it could "roll the workforce" (that is, layoff a segment) without getting into the problem of "chain bumping."

Certainly, rules and traditions develop regardless of whether a union is present, e.g., seniority as a decision rule for deciding how to deploy workers often emerges in a nonunion plant. For example, one of the large electronics companies in our survey said that as a matter of self imposition, it used seniority for overtime allocation in filling jobs even in their nonunion plants. But while the principle of seniority is often in place in a nonunion operations, it is usually easier for management to make exceptions. Another consideration is that even if work rules and the division of labor is fairly well developed in a nonunion operation, these rules are probably easier to alter as conditions change.

Sorting Through the Evidence

To some extent the claims by management that nonunion plants are more efficient than their union plants overstates the true effect. Management attempts to relate the productivity results to the fact that the plants are nonunion but these plants also happen to be new plants, with workers who have been newly recruited (often from rural labor markets) and newly trained. All of these factors have a positive impact on productivity and whether a union is present or not may be a minor consideration. The important question is: What would productivity be like in a new plant located in an urban area, or what would productivity be like in some of these plants in 15 or 20 years, after an inevitable aging process has taken place?

Fortunately, we are in a position to partial out the separate effects of age and union status that are associated with the investment strategy of establishing a new plant. Based on the statistical analysis of the survey data, we feel that the productivity benefit that comes from a new plant (regardless of whether a union is present) is two or three times greater than the effect of eliminating formal work rules because a union has not been certified for the new plant. Since this is a very important conclusion, let us provide some documentation. The restraint that is most closely aligned with age is that of resistance to change which occurs uniformly across plants, regardless of whether they are represented by a union or not. In unionized plants resistance to change placed as high in the ranking of important restraints as work rules.¹

Resistance to change has a big productivity effect because it holds up the introduction of new technology. Work rules impede productivity, but the effect is of the order of 15 or 20 percent at any one time and it is not of

¹Of the 40 unionized facilities in the survey sample, 85% identified work rules and 83% identified resistance to change as productivity restraint.

the magnitude of two- or three-fold increases that can be obtained with a new generation of equipment. Thus, we conclude from this further analysis of the evidence in the survey, that the relationship between unions and productivity is not as negative as assumed by practitioners.

There is no reason that work rules in and of themselves should exert a negative influence on productivity. In fact, the regularization and stability that goes with rules may actually help productivity. Basically, the bind develops when it comes time to change, for example, the necessity to shuffle the operations because of a change in product line or volume. It is more difficult in a union plant to handle a change in volume or to move to another product line, or to shift workers from one department to another to fill in the peaks and valleys. Let us develop this point in terms of the growth and maturation of an industry.

The first phase of a company or industry can be called the development phase. As volume grows the industry is able to engage in greater and greater division of labor. Some of this can be explained in terms of Adam Smith's theorizing ("Specialization is determined by the extent of the market"), or alternatively, it might be explained in terms of Taylorism and the adoption by management of techniques for breaking the operations down into components and assigning semi-skilled workers.

Stage two comes with the entry of unions into the situation. In the case of the U.S., unions have placed considerable emphasis on seniority as an explicit decision rule for deciding who gets promoted and how work allocation decisions are made.¹ In turn, the response of management to work allocation based on seniority is to require even more specialization of labor so that the jobs are narrowly defined and management can be certain that someone who is assigned on the basis of seniority has a reasonable chance of performing the operation.

¹We are indebted to Michael Piore for these perspectives.

If the operation is large and the volume of activity reasonable stable, the extensive division of labor and the accompanying work rules may not be a problem for productivity. Evidence for this point can be seen from the survey data: work rules are more prominent as restraints in smaller unionized plants than in larger unionized plants. In smaller plants more flexibility is required, hence there is a conflict between the contract with its rules and the operating necessity for movement and alteration.

So, the final phase is a situation of highly structured work and the use of seniority as a decision rule. Everything is stable, until pressures begin to develop from the environment. As volume starts to change, as new technology comes on the scene, the existing arrangement of work, and the rules and regulations for allocating workers across those classifications, no longer makes sense. It is at this point that work rules become identified as a major factor in the productivity problem.

Where This Leads Us

So the general conclusion about the impact of unions on productivity is that the relationship is possibly negative, but varies much with the particular context and the imperatives of change. It is unlikely that the effect is sufficiently negative that a company would be advised to seek the decertification of a union for existing operations. For operations being established in a greenfield site, it might well choose to remain nonunion, but that would be a second step decision after the pros and cons were evaluated as between expending capital for new operations versus upgrading existing operations.

The small negative relationship between unions and productivity also needs to be viewed from other perspectives. The first one is the reality that in many situations the company is not able to do very much about the question

of representation since this is ultimately a decision by the employees and secondly, the negative relationship between collective bargaining and productivity more and more can be turned in a positive direction. We will elaborate this point subsequently when we take up the subject of industrial relations and collective bargaining arrangements that facilitate productivity improvement. The possibility that collective bargaining can be a positive force for productivity is receiving substantial testing at the present time as a result of concession bargaining, labor-management committees, and joint economic forums.

Intensification

Introduction

Finally, we come to the level of the individual and the small group and the strategic necessity of increasing the intensification of human resources or commitment of the workforce. In a very basic way the human side of the organization can be thought of as an asset that can be developed and intensified, in effect, achieving an increase in social capital. The strategic assignment is to understand the alternatives for achieving this objective.

The problem or restraint side that relates most closely to this level is that of lack of commitment, e.g., the problem of absenteeism. On the program, or positive side, are the strategies of involvement and developing the capacity of the organization to handle change.

The Strategy of Involvement

It is helpful to trace the evolution of the worker involvement movement. The United States industrial relations system, and its legal framework, has been based on a belief that managers make decisions and direct

the workforce and workers follow those directions, and if they disagree, they can grieve after they have performed the assignment. This framework fit well with the growth of scientific management, in that it was assumed that managers and professional engineers knew best how the work should be done. Even the growth of the human relations school in the 1930s was based on the paradigm that managers knew best and could design more human systems to combine both people and production tasks. But recent Japanese and European success with participative management programs has led American managers to take a second look at the hard distinction between managers and the managed. In addition the demographics of the new workforce and their associated "new values" are forcing managers to question the worth of autocratic decision making in today's environment.

These developments have lead to the U.S. answer to industrial democracy in the form of employee involvement. The underlying logic is as follows. Increased involvement of employees will lead to increased commitment or a sense of identity with the company or a pride of ownership in the product. Although this is really not a new philosophy for developing good managerial attitudes and behaviors, it is, in some ways revolutionary, in that it is pushing this belief down in the organization and now involving non-managerial employees. It can be viewed as a basic philosophical realignment in American industry towards a belief in human capital rather than labor, i.e., that investment is not only in a worker's skill but also in his knowledge and understanding of the product, process, and workplace. In its purest sense, it is a return to the basics of talking and listening, and improved two-way communication between employers and employees,

This involvement has taken a variety of different forms. Initially experiments involved top down humanization by managers in the form of changing from Theory X to Theory Y management style or changing the design of jobs to

enrich or enlarge them. But more recently the move has been toward an emphasis on bottom up, or more jointly initiated and designed programs.

The interest in quality of work and other devices for involving workers must be seen as an attempt to move the culture from a poor IR/poor bottom line combination to the opposite configuration. The fact that most of the quality of work efforts have not made much of an impact only reflects the fact that it is very difficult to change a culture and a system that strongly reinforces itself.

Goodman, who has followed many quality of work experiments, has concluded the following: "The problem of maintaining change is a persistent problem change had been successfully introduced, some benefits had appeared but over time the majority of the programs (quality of work) had become deinstitutionalized."¹

Another reason that involvement does not "take" readily is that "the new industrial relations system" is viewed by many as a direct attack on managerial authority and status. Even the reward system comes under question. It used to be that hard work led to a promotion which meant more dollars, more authority and control, and a higher position in the hierarchy. But today that authority or control must be shared extensively with subordinates.

The Organization that is Capable of Adaptation

Essentially, the purpose of increasing commitment or the intensification of the labor supply is not just to close the gap of x-inefficiency but to set in motion a process whereby change and adaptation occur on a continuing

¹Goodman, Paul S., and James W. Dean, Jr., "The Process of Institutionalization," (Carnegie-Mellon, School of Industrial Administration Working Paper, 1980) p. 46.

basis. Ultimately, the successful introduction of new technology, of new methods and the elimination of work rules only occurs when individuals and small groups at the operating level agree to accept these new arrangements.

Our approach to thinking about the subject of administering change is to recognize that in principle workers may be willing to be reassigned and to accept new work arrangements, but when the changes become specific and the issues of security, equity and the fabric of economic and social relations are involved, then resistance may be engendered. Two models of this process can be presented as well as summarizing some of the concrete programs that are involved.

An Economic Model for Understanding Resistance to Change

A worker (or indeed management) will resist change because the expected costs are higher than the expected gains. This can be complicated by the tendency of workers to be risk adverse, in other words, the uncertainty of the new operation magnifies the possible costs compared to the gains and advantages that are known for the present circumstances. ("Better the devil I know than the one not known.") How, then, does the organization lower costs? A number of possibilities suggest themselves: job guarantees, training so that the new responsibilities can be handled in stride and an atmosphere of growth, so that people feel that they are part of a progressing operation.

Similarly, ways can be fashioned to deal with uncertainty. This is where communication and participation, as well as exposure to operations that are organized along similar lines fit into the picture. Trial periods and experiments also help deal with uncertainty.

Finally, on the gain side, bonuses and learning curve incentives may be very effective. Another program, that we have called contingency compensation, can have the effect of tying the economic interest of workers

much more closely to the fortunes on the enterprise. Much of this interest has been stimulated by the Japanese model, wherein each year four to five months of compensation is received in semi-annual bonus payments. The magnitude of this sum and the potential swing creates a very close economic identification between workers and the enterprise.

A Social Model

In a similar way we can present a model for understanding the social or group resistance to change. This dimension probably is much more crucial than the economic side. Basically, change places a social structure under threat since it directly challenges the survival of the existing pattern of associations. Almost any change that moves workers to another department or shifts them to another line of work will alter their pattern of social interaction.¹

It is not as easy to think through programs to deal with the possibility of social disintegration as was possible with respect to economic threat. This difficulty in itself suggests why resistance to change is not easy to overcome because often it is not possible to leave a work group intact, e.g., in the face of the computerization of the office.

The fundamental premise of socio-technical analysis is the need to harmonize the social structure of the organization with the technical requirements. Another perspective on administering change identifies culture as the key concept -- in effect, it is the culture that is preserving the status quo and making it difficult to move to new arrangements.

¹An insurance company reported as follows: "We installed a system for prioritizing and dispatching claims that made it possible to track responsibilities, reduced the backlog and improved productivity, but it also changed the traditional reporting relationship in the office and met with resistance."

Without question one of the most difficult undertakings is to change the culture of an existing plant. If the business profile for a plant or office is one of stagnation, then it is unlikely that any change can be made in the outlook of the organization without more fundamental changes in the underlying material conditions. Hence, a pre-requisite to a change would be new investment (and a stream of investments) that convinces the organization that the establishment has a future. Having done this, the next step would involve the challenging task of seeking to change values and moving the establishment in the direction of participation, openness, communication, equality, security, and mutual responsibility -- attributes of what has been called the Japanese method. All of this represents extensive social restructuring and can take the better part of a decade to accomplish.

With the viewpoint of culture in mind, several tactics or programs suggest themselves. One is to eliminate the opposition, e.g., by retiring older workers so that younger workers can be brought in and adapted to the new arrangements. Another is to assure the organization that it can always return to the former mode if the new work arrangements do not prove satisfactory. This is the concept of the trial period. Along with this is the assurance often given that once the change is made, there will be a period of stability so that people have a chance to re-establish social relations.

Specific Mechanisms

Programs aimed at paving the way for change involve a number of dimensions. Certainly, emphasizing job tenure and what we have said about career employment incentives can help with the process of change. To the extent that people are reluctant to go along with change because it may mean that their jobs will be eliminated, then the provision of job tenure can help eliminate this resistance.

A second mechanism is that of information and communication of plans and consequences. Generally speaking, people go along with new arrangements when they have had a chance to rehearse the new situation in their minds by knowing about it in advance and when they have some basis for understanding the rationale and overall plan for the change. Thus, the Forum Program that is being instituted by Ford Motor and the UAW can be seen as a mechanism for providing information that will make a wide range of changes more acceptable. Communication works best that confronts the worker with information that he can use to change his behavior. General guidance about the direction of the industry or the economy will be of some use as background but will not provide guidance about doing something differently in the enterprise. However, if the information is about market share of the company and if it is the case that cost and quality of the product have something to do with market share, then the workforce is presented with an incentive and an opportunity.

In many large U.S. corporations workers are insulated from the vicissitudes of the external market. This is a function of size and also until recently of economic success. The function of communication is to cut through this barrier and to confront the worker with the economic realities.

Companies that have used the Scanlon Plan say that one of the most important by-products is the economic education that takes place when workers are motivated to learn about problems and to see the relationship between what happens in the market place and the repercussions within the enterprise.

Another way to state the purpose of communication is to avoid two kinds of errors that often occur in industry. The first is the error of ignorance wherein the firm is gradually losing out economically but the workers are in the dark about this decline. The second error, and one that is happening more

frequently of late, is where the workers are trying very hard but the economic situation is beyond retrieval. This explains in some circumstances why union leaders urge against concessions while workers at the local level are willing to do anything in an effort to save their jobs.

Certainly methods that enhance participation and involvement of workers through quality of work programs, sensing meetings, opinion surveys and the like help get the attention of the organization and develop the identification of mutual purpose and commitment by management and the workforce.

Beyond these ideas for enhancing the adaptability of the organization, there are several other devices of a more immediate nature that can encourage change. Analogous to the one-shot incentive mentioned in connection with productivity bargaining where a bonus is paid for the elimination of inefficiency, an organization might consider paying a one-shot performance bonus for shortening the learning curve that is involved in introducing a new machinery or moving over to a new system of any sort. Such an incentive arrangement is common practice with defense contracts. The idea would be for a one-shot bonus to be paid to the organization if it is successful in fore-shortening the "start-up."

Speaking of profit sharing, this method of wage payment has an inherent advantage for the objective of continuing adaptation. Since the test of the market is incorporated into the profit sharing method, members of the organization only receives rewards if it is performing successfully against competition. Unlike most other system for sharing productivity gains, profit sharing does not allocate any extra monies unless the performance of the organization is higher than what is the norm for the industry. Thus, the method of profit sharing, if handled correctly, and if accompanied by an adequate communication program, can keep the orientation of the organization

focused on competition and the external environment and on the changes that need to take place internally to meet external challenges and developments.

Another very specific technique and a powerful one for pulling people through the unknown that is always present with change is to use experiments and pilot projects before installing new equipment or the new method on an organization-wide basis.¹ Side by side operations, one with the new arrangement and one using the traditional arrangement can teach very powerful lessons. The people who are watching see the example of "it is possible to do it the new way." (In this connection, companies have found that taking workers to other operations where the method is in place can be a "trip worth a thousand words."²) Also, it is clear that if the new method does not work out that the workers will remain in their accustomed machinery and procedures.

The concept of a pilot operation is well ingrained in industry for research and development work, but it is not as institutionalized as part of a learning system where workers from other plants come to observe and participate and where the pilot project is not just used to solve technical problems but is also used to deal with motivational and social problems.

¹A publishing company follows this approach by paralleling old and new technologies.

²TRW used this technique to deal with the opposition of union leaders to productivity improvement programs. Specifically, they took selected union members to three plants -- a TRW operation and two owned by other firms -- where productivity programs were in place. "We let them talk to anyone in the plant. They saw the entire program in operation." (Fortune, "Labor Faces the Productivity Challenge," March 19, 1981.)

CHAPTER V

INDUSTRIAL RELATIONS AND PRODUCTIVITY IMPROVEMENT STRATEGIES

Introduction

At this stage we would like to return to the subject of industrial relations in a much more explicit fashion. Throughout the report we have dealt with industrial relations in a very broad sense, including such subjects as human resource management, employee relations, and personnel policies. However, there is a narrower connotation to the term "industrial relations" and it is to this dimension that we would like to turn at this point.

When CED asked us to prepare our review of the productivity subject with special reference to industrial relations, we were mindful of the long standing question about whether labor-management relations is neutral, negative, or possibly positive with respect to the subject of productivity. In the preceeding chapter where we discussed the subject of work rules and the impact of collective bargaining, we analyzed a key connection between industrial relations and productivity. Here, we would like to develop the subject of labor-management relations more extensively.

How To Think About Industrial Relations

The starting point for defining what we mean by industrial relations is to think of the employment relationship as consisting primarily of two parties, the employer and the workers. Industrial relations involves the structuring of that relationship via the presence of a union and the other institutional activities that flow from that basic fact. Thus, labor-management relations becomes the shorthand title for the

institutionalization of the employment relationship when a union is present. (In the same way, the government could be introduced as an actor, and indeed over the past several decades the employment relationship has been shaped in some very fundamental ways as a result of government legislation and the presence of regulatory agencies.)

When the employment relationship is influenced by the presence of a union, we can identify a number of themes that relate to the subject of productivity.

- In some industries the presence of a union helps with the recruitment and training of the work force. This typically occurs in craft-type situations and it is one of the reasons that productivity is higher in unionized construction firms than in the unorganized counterparts. While for certain industries this function is a key factor, for the industries that are of primary concern to us, manufacturing and service more generally, the union role in the recruitment and training of workers is not an important dimension and we will not concern ourselves with this subject.
- The presence of a union and the higher wages that often result usually mean that a higher quality work force can be hired and turnover will be lower. All of these effects increase productivity. Similarly, this dimension of the labor-management relation will not be of concern to us at this point, since these aspects of the "shock" impact of unions, while of theoretical interest, represent a one shot, step-up in productivity -- not a continuing effect.
- The presence of a union brings with it a contract and in turn rules, customary practices, and precedents. This important part of the labor-management picture has been discussed under the subject of work rules. What remains to be done (and we will return to this shortly) is to examine the collective bargaining approaches that might be adopted to facilitate a more constructive relationship toward the "web of rules" in order to improve important economic outcomes, especially productivity.
- Finally, the hallmark of collective bargaining is the process of settling grievances and negotiating agreements. These activities can have an impact on productivity and we would like to examine this connection a little more closely.

Connection Between Collective Bargaining Activities and Productivity

If we take the measure of collective bargaining via such items as grievances, number of strikes, and time spent in solving grievances and negotiating contracts, then there is strong evidence that as these activities intensify there is an association with lower levels of productivity. While it is not clear that a direct cause and effect relationship exists, it is clear that a reinforcing effect exists between the labor-management relationship and the economic outcomes of the enterprise.

The basic proposition is that the character of the labor-management relationship has a direct bearing on the productivity that is realized in a given situation. When the labor-management relationship is very negative, then there is also a negative impact on productivity. The extreme example most often cited by analysts is the poor productivity in Great Britain -- this being attributed to poor labor-management relations.

A recent study done by Katz, Kochan, and Gobeille shows a strong connection between the overall climate or tenor of labor-management relations (as measured by number of grievances, unresolved local issues, and time to settle local contracts and a variety of economic performance measures)¹.

Another example that has been reasonably well-documented is the coal industry in the United States. The declining productivity (until recently) of the industry has been partly attributed to the turbulent labor-management relations, including wildcat strikes and slowdowns. Wayne Horvitz, former

¹Katz, et.al., op.cit.

director of F.M.C.S. has concluded that unless labor-management relationships in this country are made more positive and unless the parties engage in more problem solving, then these negative relationships will act as a "drag on productivity."¹

Clearly then, poor industrial relations can exert a downside influence. In other words, good industrial relations can be thought of as a pre-requisite that has to be met before productivity can realize its potential. To use the language of Will Baumol, good industrial relations is a necessary but not a sufficient condition for increasing productivity.

We might examine for a minute the question of what really holds productivity back when the labor-management relationship is negative. The answer lies in the word "system". A poor labor-management relationship represents a systemic condition and such events as grievances (with supervisory time spent in arguments) and lack of production due to strikes are bound to influence productivity in a negative direction. For example, one of the plants in our survey listed illegal work stoppages as the number one restraint. It does not take very much imagination to visualize how a pattern of illegal walkouts can wreck havoc with productivity.

The next question is to ask whether good industrial relations in and of itself can make much of a direct contribution to good productivity. The answer here is not as clear. Many examples can be cited of plants that on the surface appear to have good industrial relations but productivity is not

¹Rosow, op.cit., p. 276.

up to desired levels. Whether good industrial relations has been "bought" at a price of lower productivity or whether the explanation is more complicated and rests with the other factors that are needed for good productivity, such as sound management, adequate capital and positive programs for coordinating the factors of production to achieve good results is not clear. But we lean towards the latter explanation.

Of course, positive industrial relations can not remain in place over the long run if productivity is not satisfactory. Here again we can draw the distinction between a configuration that can exist in the short run, namely, good industrial relations and low productivity, and the long run implications. Certainly, the viability of the labor-management relationship depends upon the viability of the enterprise over the long run and no labor-management relationship can remain positive if the plant is in trouble in terms of its market position and cost performance.¹

This emphasis on the long-run relationship for both the position of the firm and the nature of the labor-management relationship, gives us a way of putting the movement towards collaborative labor-management relations in perspective. The long-run emphasis focuses attention on the range of mutual dependence or what might be called mutual advantage. Any employment relationship has to possess mutual advantage for the parties to remain attached to the relationship.

It is fashionable these days to say that labor-management relations in the United States are too adversarial, but this label eliminates an important part of the story. The sentence needs to be finished to the effect that the

¹One of the classic examples of a union-management relationship that was touted as a model but where productivity was so poor that the firm eventually closed down was Studebaker.

parties can afford to deal with each other on an adversarial basis only so long as it is mutually advantageous for them to remain in the relationship. It is this latter part of the equation, emphasizing their joint dependence, that is placed in focus when the perspective is the long run.

Based on research and practice, then we can posit that if grievances are higher, then it is quite likely that productivity will be lower. But the relationship is not as straightforward as saying: "Let's lower grievances and productivity will increase." Lowering the level of grievances may require a change in management style, an alteration of the technology or the work structure, and/or the hiring of different kinds of workers. Grievances and productivity are both outcomes, and the "blackbox" from which they originate contains very complicated interactions -- another metaphor is that of a culture that reinforces itself -- a culture is not amenable to change in a mechanical fashion.

This general point can be illustrated more specifically with the subject of absenteeism. In the work done by Katz, et.al.,¹, absenteeism correlates positively with the other industrial relations system measures and negatively with economic performance on a cross-sectional basis. However, in the change regressions, that is, tracking plants that have had more intensive application of quality of work programs, there is little, if any, improvement in absenteeism as a result of the intervention.

The message from these studies is that if the industrial relations/productivity equation is going to be changed, then a very comprehensive strategy that involves a multifaceted change operation of policies and structure is required.

¹Katz, et.al, op.cit.

The Industrial Relations Connection to the Different Strategic Levels

At this point we would like to be more explicit about how industrial relations can make a positive contribution, or, at a minimum, eliminate its negative role with respect to the three levels of strategic analysis presented in the last chapter.

Intensification of Human Resources - We turn first to the level of the individual or the small work group and the strategic assignment of intensification of human resources. Here the model industrial relations system is that of Japan. This presents somewhat of an anomaly for the U.S. labor movement since the role of unions at the plant level in Japan is quite minimal -- Japanese management enjoys considerable freedom for transferring workers across assignments and the issue of work rules appears to be non-existent. Hence, there is some support for the general proposition that the greater the shopfloor power experienced by a trade union, then the greater the ability of the union to enforce work rule arrangements and the greater the potential drag on productivity.

Strong trade unions, however, can exist without their exercising extensive control over shop level decisions. Experience in Sweden and Germany can be cited in this respect. In both countries trade unions are strong at the national level but management enjoys considerable freedom to deploy labor -- indeed, much more flexibility in the assignment of workers than is the case in the United States. A number of factors explain this contrast. Layoffs are very rare in these two countries -- consequently, the adherence to work rules in order to enhance job security is not present. Also, firms recruit, develop and advance workers much more via the internal market. Employees are hired at the entry level and trained within the establishment or industry -- without resort to apprenticeship programs of the sort that exist in the United States. Finally, unions exercise their influence at the central level of the

industry or economy, as well as through a network of co-determination arrangements as is the case in Germany. The point of all of this is that a different industrial relations system can accommodate a strong trade union force without the inevitability of restrictions at the shopfloor level.

But these examples of industrial relations systems in other countries only provide guidance for the U.S. in the long run. For the short run, the probing question is: What role does collective bargaining play in influencing the behavior of individuals and small groups?

To state our conclusion rather directly: a union does not play a significant role in improving the productivity of individuals or small groups. In many ways, management is right in saying that good productivity can be achieved if there is intelligent supervision and if the workers are involved on a direct basis. As managers often comment: "Why do we need a third party to get on with the task of improving productivity?" There is much evidence to support this premise and this leads to the point that a role for a union at this lowest level is to minimize the drag that comes from excessive grievances, unnecessary strikes, and the like.

Generally, unions do not find this conclusion incompatible since it is difficult for a union to maintain its vitality and to participate wholeheartedly in a quality of work program. This is due to the fact that a quality of work program puts in place a different system for allocating work and workers than the contract that the union has negotiated. So we come to the conclusion that the union movement may not have a major proactive role to play with respect to intensification of human resources. The various committees and involvement efforts can proceed without the institutional presence of a union. A union can improve the atmosphere so that high commitment programs can go forward, but labor-management relations

probably will not be a facilitating factor for intensification of human resources.

A union can play a decisive role during the setup stage for a quality of work program, especially if suspicion and/or apathy exist amongst the work force. The union can present a point of view about the need for involvement that often is more credible with the members than management's. As an institution, the union has access to communication channels (union meetings, stewards and mailings) that provide another entry point into the thinking and awareness of the rank and file.

Harmonization of Work Organization - At the middle level, the level of the plant where the collective bargaining agreement takes form, we come to the heartland of what is known as the U.S. industrial relations system. The essence of the U.S. industrial relations system is the plant agreement and the structuring of a relationship at the local level between management and the representatives of the workers. It is here where we also confront the many rules that emanate from the contract and from customary practice that often inhibit productivity. For this level there is no preferred model that comes from another country. Instead, the model guiding the design of work organizations come directly out of U.S. experience. We can distinguish two major species of industrial relations systems.

On the one hand, there are a group of companies that have pushed into new operations with the array of techniques that have been referred to as comprehensive personnel policies. These operations are for the most part unorganized and case studies suggest that motivation and enthusiasm are very high in these operations.

On the other hand, there are the established plants, usually unionized, that are undergoing dramatic change at the hands of productivity bargaining, concession bargaining, quality of work, and labor-management committees. These measures have been referred to as the new industrial relations, or the cooperative economy. The dust has not settled and it is too early to tell the extent to which these new systems will really change the culture of established operations and have a dramatic impact on productivity. But certainly, considerable change and experimentation is underway.

Our survey contains dramatic examples of both systems. We have plants in the steel industry that are engaging in participative endeavors; at the same time we have plants in other industries that are practicing the socio-technical ideas that are often installed in unorganized plants.

In passing, we would like to make a comment about the strategy of union avoidance. While it is not our purpose to indicate that such a course of action is ill advised, we would like to take note of one piece of research that indicates that sooner or later unions come on the scene. Roger Schmenner presents data that indicates that growth in unionization takes place at about the same rate in the growth areas of the country (such as the Sunbelt) as is the case in the North¹. It would appear that as plants age they increase unionization by about 30 percentage points.

¹Roger Schmenner, The Location Decisions of Large Multi-Plant Companies, (MIT: Joint Center for Urban Studies, 1980), p. 344.

PERCENT OF MANUFACTURING
ESTABLISHMENTS UNIONIZED

	<u>Existing Plant</u>	<u>New Plant</u>
Right to Work	44	14
Non Right to Work	57	29

Returning to the unionized sector, it is clear that more and more experience with integrative bargaining or problem solving is occurring. Rather than emphasizing the adversarial or conflictual elements of the relationship, the emphasis is on accommodation.

Productivity bargaining can represent the first step toward such a collaborative approach to labor-management relations. There is a type of reinforcement that takes place between the specific activity and the general strategy being pursued with respect to the labor-management relationship. Quite often parties have found themselves in an adversarial relationship and have embarked upon productivity bargaining as a way of dealing with certain operating problems. Then, as a result of a successful agreement and the recognition that costs can be lowered and jobs can be made more secure, the labor-management relationship turns in a more accommodative direction.

A good example of this reinforcement can be seen in the experience at Goodyear in establishing new capacity for the production of radial tires. The company indicated that it was willing to place the facility at an existing location, either Topeka, Kansas or Gadsten, Alabama. At Topeka the rank and file voted down productivity changes and as a result Gadsten got a chance to compete for the new plant. At Gadsten the union voted 100 to 1 in favor of adopting a labor agreement which guaranteed new productivity levels as a result of abandoning incentives, instituting round-the-clock shift operations and restricting the use of seniority (for transfer and bumping) to the new plant.

One of the most interesting developments that has come out of concession bargaining and other efforts to change the work structure is the linkage of changes in plant practices to the commitment of additional investment funds. When this takes place as part of a particular package we would label it "job-investment bargaining". As we noted in our discussion of investment decisions and involvement of the union at the highest levels of the corporation and industry, this represents a new frontier for labor-management relations.

One of the main reasons for concession bargaining, in a conceptual sense, is that in many relationships the range of mutual advantage has vanished and may even be negative. Certainly, the existence of a mutually advantageous range has been seriously jeopardized by a number of important economic developments. From the management side, a number of pressures have moved them much "closer to the margin." Their alternatives for buying or making the products outside the relationship, specifically outsourcing or establishing nonunion operations, have increased in number. To put it in economic terms, any contract must be viewed against the alternatives or the opportunity costs involved and these have increased in number. It is also possible that the transaction costs of pursuing the alternatives have decreased.

The fundamental question is whether the pressures that are on the parties will produce a one-shot repositioning, that is, placing the parties once again back within a mutual dependence (only to resume the adversarial stance) or whether the result will be a permanent change in the character of labor-management relations in fundamental ways over the long run. There is some support for both views and only time will tell which predominates.

Given the way we think about the labor-management relationship and the range of mutual dependence, it is natural to argue that once the parties

"re-write the contract," that the basic relationship will remain one of adversary tinged with some cooperation. Certainly, the experience of the steel industry would support this interpretation. Over the past 15 or 20 years there have been numerous labor-management productivity improvement efforts involving human relations committees and special productivity programs -- but none of these have worked or have had much of a bearing on the basic tenure of labor-management relations. This is precisely because each time that a committee was started, the profits of the industry returned to acceptable levels and the incentive to establish new principles of collaboration was removed or political factors within the union raised the costs of collaboration for the leadership. As a result, labor-management relations have remained in a conventional mode for the most part.

On the other hand, programs that have been undertaken by other companies suggest that in some instances a new type of collective bargaining relationship may be emerging. Quite significantly, the companies in our survey that are in industries that are undergoing tremendous economic pressure and change placed such subjects as quality of work, productivity bargaining and communication at the top of their list of positive programs. Certainly, this is to be expected. Crisis brings parties together. Whether it will be temporary or permanent is the big question that needs to be answered by observation of events over the next several years.

Rationalization of Investment - We now come to the highest level, the level of the corporation or industry where the basic business decisions are made about the deployment of capital assets. Here the model to emulate is that of Germany. As we will discuss, we are not advocating co-determination, rather we are advocating increased involvement and presence for unions at the highest levels of the enterprise.

For U.S. unions, involvement at this level has been relatively infrequent and indeed most unions have said that they prefer to leave business decisions to management. However, given the movement of capital on a worldwide basis and given the vital stakes that are involved for employment of their members, greater involvement would seem to be imperative. Unlike the lowest level where good results can be obtained without the presence of the union, we would argue that a balancing of the stakes cannot take place without some representation of worker interest at the highest levels.

We would even go further and maintain that such involvement on the part of unions also can be in the best interests of management and stockholder interests. This philosophical premise holds that by bringing the concerns of workers into key business decisions, the resulting decisions will be qualitatively better, to the long run benefit of all concerned. For example, a union participating in a discussion about the shift of capital from one location to another can propose a transition timetable that minimizes disruption for the workers involved, thereby enhancing operating effectiveness and producing a "win-win" solution. One might ask why management on its own could not balance off such interests and achieve a more optimum course of action on its own. One answer is that pressures for short run results often leads to a drastic shifting of resources with immediate gains but long run destruction of the human capability of the organization.

Some persuasive examples from Germany can be cited where the presence of unions has served to achieve this joint gain for all sides. The best examples come from the experiences of VW and a number of German steel companies during the mid 1970's. In these instances the unions involved helped shape programs for achieving economic change, e.g., shift of production from Germany to the U.S. (VW), and regearing facilities from bulk to specialty steels at the same time that the impact on the workers involved was minimized through phasing, retraining, and early retirement programs.

When basic and fundamental restructuring processes are involved, it is possible that the unionized situation can adjust more rapidly than the unorganized situation. This is due to the fact that union leaders are often aware of the basic economic realities facing the industry and recognize that some plants have to be closed and that modernization has to take place in order to maintain the viability of the remaining core of the industry.

The process that we are envisioning involves the presence and participation of the union. Experience in this country, when unions have been "brought in" on business decisions is that they generally do not try to block these decisions but concentrate attention on modifying them from the perspective of worker concerns. In other words, they join the issue rather than creating a stalemate.

Clearly, these kinds of discussions fall within the non-mandatory sphere of U.S. collective bargaining. This is just as well since mandatory bargaining over business decisions would embroil the parties in considerable posturing and power confrontation.¹ We see substantial movement in this direction within U.S. collective bargaining. Recently, agreements in such industries as meatpacking and automobiles have spelled out ways in which the investment decisions of the respective companies will be reconciled with the interests of the workers. Also, in some instances, forums and other means of discussion and communication have been set into motion for the linkage of business decisions to the stakes that workers and unions have in the shape of the enterprise over the long run.

¹It should be noted that the legal framework governing labor-management relations in the U.S. does not provide for consultation. Rather, the approach is to identify mandatory subjects of bargaining, including wages, hours and working conditions. Subjects such as productivity, investment plans, and participation fall in the permissive area.

General Motors refers to its consultation program as the "forum for the competitive edge." This is an appropriate label because it focuses attention on the viability of the enterprise and the steps that need to be taken at the highest levels. Information about market share and the status of the technology are pieces of the picture that affect the employment security of all employees, as well as the profitability of the enterprise and the interests of the other stakeholders.

The Concept of Industrial Relations as a "Bottom Line"¹

Throughout this report our concern in terms of a bottom line or ultimate focus has been with productivity and other aspects of economic performance. It is appropriate at the end of our journey to turn the focus around and to consider industrial relations as a potential bottom line.

It is clear that when productivity or economic performance is the bottom line there is considerable connection between the character of industrial relations and what happens ultimately to economic performance. For example, in his work on plant locations, Schemenner has determined that the character of industrial relations is a very important determinant as management decides to expand an existing operation or to move to a green plant site.²

At least half a dozen firms we contacted have indicated that they will direct investment depending on industrial relations factors. Usually the sequence is one of committing new investment to greenfield sites or to plants

¹It is significant that Donald Peterson, President of Ford Motor, has used this term to describe the agreement between his company and the UAW. Among other things, the agreement provides for pilot employment guarantee programs at two plants, guaranteed income stream, overall employment targets, retraining and mutual growth forums. All of these concepts indicate that industrial relations is seen as a critical asset by Ford.

²Schmenner, op. cit.

that have a good labor relations atmosphere. The troublesome plant may be slowly phased out -- it will be kept in operation as long as cash flow is positive. Thus, industrial relations factors work, albeit slowly and behind the scenes.

In turn, we are convinced that investment decisions and many of the other important strategies available to management impact directly upon industrial relations. The difficulty is that we do not have adequate ways of measuring the quality of the bottom line nature of industrial relations. We can measure its negative attributes such as grievances, strikes and absenteeism. But if the industrial relations system and more broadly the organizational arrangements are viewed as a technology, we do not have good ways for measuring the capacity and effectiveness of this human technology. We have the concept of human capital which talks about the skills and education acquired by individuals. We know effective organizations when we see them, but we do not have good ways of measuring human assets as a functioning organization.

Japanese companies place considerable emphasis on maintaining the growth and vitality of the organization and view this as a direct objective. Many of the large successful high tech firms in the U.S. have the same outlook. Certainly, developing a positive labor-management relationship cannot hurt productivity. While it may not be a factor in and of itself that will guarantee, it certainly will not impede, productivity. For this reason, many corporations are emphasizing this strategic direction. This appears to be the case especially in the United States. For example, in the survey done by the Sentry Insurance Company, business executives voted 61 percent of the time for the proposition that there is too little cooperation between business and

unions in the United States. A comparable group of Japanese businessmen only voted for this proposition 15 percent of the time in Japan.¹

Japanese firms have been able to develop a substantial amount of organizational or social capital. It is appropriate for U.S. companies to meet this challenge. One step would be to conceive of industrial relations as a bottom line and to implement policies and programs to enhance industrial relations performance. It is hoped that this report contains some ideas that will help in the pursuit of such a goal.

¹Sentry, op. cit.

APPENDIX

Summary of Survey Findings

Survey Methodology

As part of the Committee of Economic Development (CED) research project to study the productivity implications of industrial relations institutional arrangements, a survey was designed to probe for recent changes or trends in managerial beliefs and actions by asking a number of open-ended questions. The intent of this approach was not to provide statistical evidence of specific relationships but rather to gain some insights into current practices and policies. However, there was sufficient response to the survey to test on a rather limited basis, some of the theory and literature.

The target of the survey was a representative sample of CED members across a variety of major industries. In order to get a quick response it was decided to have CED mail the survey to members of the committee. This provided the advantage of easy access and relatively good response, but also caused a number of serious data problems which will be discussed in the next section.

Since the survey was sent to CED members who are predominantly CEO's or other corporate officers, it was recognized that the responses would mostly likely be of a very general nature. In order to alleviate this problem, the survey was designed in two parts. Making the assumption that most general policy decisions are centralized to some

degree at the corporate level, the first part was a survey to be filled out by someone in the corporate office who could provide a general overview of the corporation's policies and programs. The objective of this questionnaire was to get a better understanding of the types of human resource decisions made in conjunction with changes in business conditions, such as the opening of new facilities or the reduction of workforce levels. In addition, an aim was to generate a list of the types of productivity programs which were being used and how effective they were.

In order to get closer to the inhibitors of productivity at the lower levels of management, a second survey was designed to be completed by personnel at a plant or facility. Here the objective was to better understand the causes of the productivity decline by asking questions as to what factors are inhibiting improved productivity.

The survey was pretested on a small sample of plants and then mailed to 44 major U.S. corporations. Responses were received from 28 of these corporations. The remainder declined to respond for reasons of lack of applicability, time constraints, or a feeling that the survey was too general or difficult to fill out. (It was felt that a number of excuses were most likely a disguise for a fear of confidentiality due to impending contract negotiations with their unions.) As a result, the data set includes 29 corporations (28 CED members plus one pretest company) and 61 of their plants.

Data Concerns

Because the survey was administered to a select group of CED members, there are a number of reasons why the results should not be considered statistically robust or representative of American industry.

1. The sample was hand chosen by CED based upon their probability of responding. In addition, an objective was to get a representative from as many of the major industries as possible.

2. For access reasons, the survey was sent directly to the CED member which in most cases was the CEO or Chairman of the Board. It then had to be filtered down into the organization (often 4 or 5 levels) to be answered. Because it came from the top office, it was given a high priority but the actual respondents most likely answered the survey as they believed the CEO would want it to be answered, i.e. shedding a good image on the corporation and possibly glossing over any internal problems. In addition, middle management may have been hesitant to admit to upper management that they have problems which they can not handle. Therefore, since the survey was returned back to CED via the CEO's office, there is most likely a bias toward external factors which are outside the control of management.

3. The aim of the survey was to get at problems of the institutional industrial relations systems and therefore probed at formal structures, particularly in the area of productivity restraints. As a result, the bias is once again toward external or formal internal structures outside the control of management as opposed to managerial attitudes or behaviors.

4. The survey was a self-report by management. Therefore, there is no input from employees and no validation that the responses are anything other than managerial perceptions or beliefs.

5. The questions were left very open ended to minimize leading the respondents toward specific programs or practices which they might feel necessary to mention in order to present the company in the proper light. As a result, the questions meant different things to different people. This became a larger problem than expected because the respondents performed different functional roles within the corporations, i.e. human resources, operations, productivity, finance, etc. Therefore, the responses were far from uniform.

6. The aim was to have the plant or facility questionnaire completed at the individual locations as opposed to the corporate offices. However, due to time constraints many were filled out by the corporate people. Even for those few which were actually filled out by the plant or facility, the questionnaires were returned through the corporate office. Here again many of the plant personnel may have been concerned with their impression at the corporate office and reluctant to mention productivity problems which they had not solved.

7. The instructions asked the corporations to have 3-4 plants with different characteristics complete the second questionnaire, i.e. union versus nonunion, large versus small, old versus new, etc. Therefore, the sample may not be truly representative of their corporation. In addition, due to the policy nature of CED and the specific subject matter of this research, some corporations may have chosen plants which could point to certain policy recommendations as opposed to presenting a representative sample. (That is, one might be anti-union and therefore chose a nonorganized plant with few problems and a particularly problematic union facility.)

8. The sample size is really too small and diverse to draw much statistical evidence. In addition, as mentioned above, it is not truly representative of American industry. (65% of the facilities in the sample are unionized as opposed to less than 24% in the country.)

Data Analysis

Despite all the data shortcomings, there is enough data to attempt to draw some general trends as to factors inhibiting productivity growth. The majority of the discussion in this appendix will be based on 61 plant level responses to the following question:

A. In this section please enumerate the factors that in your view are holding back productivity improvement, how these practices or problems developed, and a rough magnitude of the effects these inhibitors have on output per worker.

1. the following potential restraints have been enumerated by other companies; these are offered for

...illustrative purposes only:- (Indicate whether or not each is a restraint, and then rank order them with the most serious ranked as one.)

- (a) limitation on subcontracting
- ... (b) crew size inflation
- (c) worker or supervisor resistance to change
- (d) seniority applied to transfer and overtime allocations
- (e) inefficiencies ascribable to paid time off
- (f) absenteeism
- (g) OSHA regulations
- (h) other (please descibe)

Most of the respondents ranked those items listed and added a number of additional restraints under the category of "other". In total, 54 restraints, many overlapping in subject matter, were identified under the heading of "other". Analyses were made at several levels:

1. The initial step was to tabulate the number of times each restraint was identified by plants having different demographic characteristics which were obtained from other questions on the surveys: industry, location, size, general productivity trend, and corporate workforce reduction policy.' (Table 1 lists the frequency of restraint identification.)

2. Restraints were then grouped according to the following broad topics (Those restraints which were listed on the questionnaire are identified with an *.):

Resistance to Change

- *worker/supervisor resistance to change
- first-line supervisory resistance
- adapting to change
- uncertainty of change

Workrules

- *subcontracting
- *crew size
- *seniority
- contractual restraints/work rules

Motivation

- *absenteeism
- attitudes
- work ethic
- union-management relationship

Paid Time Off

*paid time off

Government Regulations

*OSHA regulations

other government regulations

Business Conditions

limited resource dollars

volume

lack of sufficient information systems

product complexity

behind in technical improvements or equipment design

Training

insufficient training programs

lack of technical personnel

Other

outdated incentive pay systems

inability to perform time studies

job security

work stoppages

overtime

turnover

3. Several techniques were used to find associations between the frequency or types of restraints and demographic characteristics. (For analysis purposes the ranking order of the restraints was reversed, i.e. the most serious restraint was given a value of 9 and restraints not identified were valued at 0.)

a. A tabulation was made as to whether or not restraints within each topic were identified. This ignored the intensity of the restraints, i.e. the number of times specific restraints within each grouping were identified or their rank order, but was done in order to obtain the degree to which a grouping of restraints occurred in plants with specific characteristics. Table 2 lists the percentage of plants which identified each topic.

b. The intensity of the restraints was then analyzed by adding the rank order of the restraints within each topic. This introduced a weighting bias for those topics with a greater number of restraints but it was assumed that if specific topics were identified more than once they were more serious.² This also assumed that all restraints ranked as number one were of equal strength. Table 3 lists the average ranking given to each topic.

c. Table 4 shows the regression coefficients resulting from setting the dependent variable, each of the restraint topics, equal to a linear function of the various plant characteristics. (The base group are northern, nonunion facilities in a white collar or

service industry whose workforce reduction policy is something other than layoff as an initial step.)

$$\text{Restraint Topic} = a_1 + a_2(\text{reduction policy}) + a_3(\text{size}) + a_4(\text{age}) + a_5(\text{south}) + a_6(\text{west}) + a_7(\text{central}) + a_8(\text{steel}) + a_9(\text{manufacturing}) + a_{10}(\text{consumer products}) + a_{11}(\text{communications})$$

A brief interpretation of the results will be interspersed in the following discussion with general theory, expected relationships, and selected anecdotes from the survey or literature.

Resistance to Change

Resistance to change was the most frequently mentioned restraint and it ranked second in intensity. It is also important to note that it was identified as either first or second within each demographic category. In other words, it is viewed as a major inhibitor in both unionized and nonunionized plants, large and small, and old and new. Since resistance to change seems to be a perennial problem, one must ask if this response is really any worse now than in past decades or is it just that industry is being forced to make, what seems like, more dramatic change in order to keep pace with growing foreign competition.

In looking at what factors might lead to increased resistance, one would expect that older plants would tend to identify this restraint more frequently than newer ones because their seasoned workforce would be more ingrained in procedures or habits and thereby less willing to try new processes or equipment. Since resistance to change received such a high ranking, additional regressions were made to see if age

would retain its causal relationship across several functions. It did in fact remain statistically significant when set as the sole independent variable, when combined with unionization, and when regressed along with unionization, size, and reduction policy. Therefore, it can be concluded that resistance to change does intensify with increased plant longevity.

REGRESSION ANALYSIS FOR RESISTANCE TO CHANGE
(STD. ERRORS IN PARENTHESIS)

	CHANGE (1)	CHANGE (2)	CHANGE (3)	CHANGE (4)	CHANGE (5)
MEAN	5.10	5.61	5.10	5.61	5.61
S.D.	3.97	3.68	4.10	3.72	3.66
UNION	2.11 (1.07)	- -	- -	-.23 (1.43)	-.52 (1.45)
AGE	- -	.07 (.02)	- -	.07 (.03)	.08 (.03)
SIZE	- -	- -	.001 (.03)	- -	.33 (.18)
REDUCTION POLICY	- -	- -	- -	- -	.67 (1.22)
R ²	.06	.21	.00002	.21	.27

¹ coefficient and std. error are 10³

² significant at 10% level (one tailed test)

³ significant at 5% level (one tailed test)

⁴ significant at 2% level (one tailed test)

Another contributing factor, also supported by the regression analysis, is that larger facilities have a greater propensity for resistance to change. One explanation for this stems from the fact that it is usually harder to change the attitudes or behaviors of

masses than individuals.

One would also expect this restraint to increase with unionization because workers would have a vehicle for voicing their resistance, but the data did not support this contention. In fact, when asked how union leaders react to the introduction of new technology, only 5% indicated opposition, 83% listed cautious acceptance with a caveat being the impact on job security, while the remainder were reported to encourage such introduction.

Because of the universality of resistance to change, there is really no good theory for variances across the different industries or locations. One exception might be this data set's finding of less resistance in the western states, possibly explained by the belief that west coast residents lead a more experimental lifestyle.

Work Rules

By far the restraint topic receiving the highest intensity dealt with the broad subject of work rules. Due to the rather detailed treatment given this topic in the body of the paper, only a few comments will be made here concerning the survey results.

As pointed out in the text, work rule restraints have often been identified with industries which are predominantly craft oriented or heavily unionized. Indeed, this data set's highly significant, large regression coefficients for unionized plants, and steel and

manufacturing industries, support this contention.

Construction is a good example of an industry which has historically been plagued by work rule restraints. A survey by Ebasco Services identified the sources of inefficiency in this industry to be due to jurisdictional disputes (work stoppages), waiting for materials and improperly trained personnel. In addition, A Study of Work Practices and Working Conditions Prepared by the New York Construction Users Council stated:

This study is comprised of excerpts from current collective bargaining agreements which affect working conditions and practices that we believe should be adjusted or eliminated in order to increase productivity and help to make union construction work less costly and more economically feasible.

The study then enumerated a range of problems involving extra personnel, rigid starting and stopping times, payment of overtime premium and arbitrary work requirements as to who should repair a machine and where a certain type of work should be done, as between on or off-site.

As the analyses point out, work rules tend to intensify with increasing age of a facility. As Harbison pointed out in 1946:

Seniority rules may raise worker morale and increase efficiency when they are first introduced, particularly if they displace a haphazard and biased system of scheduling layoffs and selection of employees for promotion. Seniority rules appear to be fair when, as is usually the case, they eliminate personal discrimination. But, as time goes on, they may turn into rigid strait jackets which substitute discrimination "by formula" for the haphazard discrimination

of poor management.³

It is interesting to note that resistance to change increases over time at a constant rate in both unionized and nonunionized plants, but work rules, because of the enforcability of past practices, build up and are perpetuated more in organized plants. Thus, it is the interaction of age and union status that puts the older, unionized plants at a severe competitive disadvantage.

REGRESSION ANALYSIS FOR WORK RULES
(STD. ERRORS IN PARENTHESIS)

	WORK RULES (1)	WORK RULES (2)	WORK RULES (3)	WORK RULES (4)	WORK RULES (4)
MEAN	8.36	8.30	8.36	8.30	8.30
S.D.	6.13	6.70	7.39	6.20	6.14
UNION	8.54 (1.65)	- -	- -	6.73 (2.38)	5.75 (2.44)
AGE	- -	.11 (.04)	- -	.05 (.04)	.05 (.04)
SIZE	- -	- -	.01 (.06)	- -	.05 (.30)
REDUCTION POLICY	- -	- -	- -	- -	3.24 (2.06)
R ²	.31	.17	.001	.31	.35

¹ coefficient and std. error are 10³

² significant at 10% level (one tailed test)

³ significant at 5% level (one tailed test)

⁴ significant at 2% level (one tailed test)

Motivation

The CED survey results provide evidence that reduced motivation is indeed viewed as one of the major inhibitors. One respondent who estimated attitudes to have a 10% reduction in productivity, stated:

A small percentage of employees believe management is the enemy; others have a philosophy of doing just enough to get by; many have been spoiled by "soft" management.

In addition, a number of the respondents cited that the negative impact of absenteeism on productivity is in the range of 5 to 10%.

Again, more detailed regression analyses were made for this restraint because of its perceived seriousness.

A couple of points can be made concerning the effect of various demographic characteristics on the magnitude of the problem:

1. The data shows a strong relationship between high absenteeism and the use of layoff as the primary mechanism for workforce reductions. (Although not statistically significant in the above tables, when industry and location variables were added in Table 4 the regression coefficient was quite large (5.83) and highly significant.) This can be explained by the tendency for workers to believe that if they stretch out the work by being absent they will lengthen their job continuity. It has often been suggested that just the opposite relationship exists, that is, that workers should be absent less in times of production declines due to fear of disciplinary termination in that employers would prefer discharging poor performers before laying off good workers. However, with increased grievance machinery (contractual, governmental, and in many cases employer instituted in nonunion settings) employers find it more and more difficult

REGRESSION ANALYSIS FOR MOTIVATION
(STD. ERRORS IN PARENTHESIS)

	MOTIV (1)	MOTIV (2)	MOTIV (3)	MOTIV (4)	MOTIV (4)
MEAN	4.98	5.64	4.98	5.64	5.64
S.D.	4.20	4.46	4.35	4.30	4.28
UNION	3.10 (1.13)	- -	- -	3.37 (1.65)	3.00 (1.70)
AGE	- -	-.01 (.03)	- -	-.04 (.03)	-.05 (.03)
SIZE	- -	- -	.06 (.03)	- -	.20 (.21)
REDUCTION POLICY	- -	- -	- -	- -	1.41 (1.43)
R ²	.11	.004	.05	.10	.15

¹ coefficient and std. error are 10³

² significant at 10% level (one tailed test)

³ significant at 5% level (one tailed test)

⁴ significant at 2% level (one tailed test)

to discipline workers with poor absenteeism. This explains why unionization remains the major factor in the above analyses.

2. There also appears to be a strong relationship between higher absenteeism and industries which are comprised of significant numbers of blue collar workers.⁴ This finding supports the claims of many work humanists who advocate setting up all-salaried work structures, inclusive of production and maintenance workers. As one of the survey respondents stated:

All employees at our plant are paid on salary basis which means that approved absences are paid for. This is an excellent morale booster. Production employees under our wage payment system are guaranteed the rate of their scheduled job on a weekly basis. If they are assigned to a higher pay job for a shift (8 hrs.) or more, they are paid the high rate. This provides more flexibility in making work assignments and reduces

... training costs.

3. The negative relationship between age of the plant and absenteeism could loosely be viewed as evidence for the "new values" argument if it is assumed that newer plants have predominantly younger workers. However, Table 2 shows that the frequency of motivational restraints increases for plants in the 15 to 30 year range but decreases slightly in older plants. One could still argue that "new values" are the root of the problem because in this age range, workers who started with the plant in its early years have retired and been replaced by the younger breed. But many practitioners find that absenteeism rates do not really vary significantly across employee age groups, possibly because older workers have a higher incidence of sickness and illness or the "new values" have infiltrated all age groups.

Paid Time Off

One argument for the decline in productivity growth is that labor costs are increasing faster than output partly because of increased pay for time not worked. The data indicates that 56% of the respondents do in fact view this as an inhibitor to productivity improvement. Discussion will center on the two main types of paid time off: holdiays and vacations.

Since both holidays and vacations have traditionally been viewed as bread and butter goals for unions, it is not surprising that this restraint is mentioned over twice as frequently in unionized plants versus unorganized ones. In addition, since the magnitude of vacation time (and often eligibility for paid sick days) is usually tied directly to length of senioriy, it would be expected, as the data supports, that older plants would view this as a more serious inhibitor than newer ones. As one of the respondents cited:

Due to long service of work force (28 years average) extensive vacation time and holidays result in 20% yearly non-presence or in effect a 4-day work week. Effect on output per worker: 20%

Although not statistically significant, it is interesting to note that this restraint was mentioned by half of the plants with less than 250 employees. The severity of this problem becomes more intense when there are fewer workers who can cover for absent employees.

Government Regulations

Many Americans blame the government for many of our economic woes. Indeed, most businessmen will claim that increased government regulations are a major component of the productivity problem. The issues concerning industrial relations are in the areas of OSHA, EPA, EEOC, and ERISA.

Two interesting trends emerge from the survey data:

1. Managers are more than twice as likely to identify government regulations as an inhibitor in firms which use layoff as their primary vehicle for reducing employment levels. One possible explanation for this is the constraints which the equal employment regulation have placed on major corporations, particularly those dependent on governmental defense contracts (a major portion of the CED sample), in the selection, placement, and termination of employees.

2. Unionization is not a factor in identification of government regulations as a restraint in productivity improvement. (The regression analysis even shows a negative relationship, however, it is not statistically significant.) This is interesting in that unions have been one of the driving forces behind much of the legislation. However, since plant management in unionized facilities are used to restraints or checks imposed by unions, they may not view

governmental intervention into their personnel policies and practices as any added constraint.

Business Conditions

This is the first topic which is totally comprised of write-ins by respondents and therefore the frequency is rather low. In addition, the regression analysis is not as relevant for this topic because it includes a variety of different issues. But when mentioned, the intensity was quite high. As a result, the discussion will be limited to the two most frequently mentioned areas: volume and insufficient resource dollars.

It stands to reason that if higher volumes are realized for a given plant or enterprise, then there will be "economies of scale." Higher volumes allow fixed costs to be spread over more and more output and consequently the total unit costs will be lower as volume increases. In a productivity sense this means that capital and labor do not have to be increased proportionately as volume builds to higher levels.

This point about productivity being related to volume can be seen in the experience of many industries over the course of the business cycle. Specifically, productivity is highest as volume grows towards the capacity of the operation. Extra shifts can be added without a corresponding increase in the resources required. However, as output is expanded, the natural capacity of the operation can be exceeded with overtime and the use of antiquated equipment to a point where

productivity may actually decline. Except for this limiting case, for most of the range of utilization there is a positive relationship between volume and productivity.

Examination of the productivity numbers for key industries over the past two decades indicates that many of the industries that have experienced a productivity deficit are precisely those industries that have had a fall-off in volume of activity, such as automobiles, tires, and shipbuilding.

Another problem associated with general business conditions is the reluctance of corporate executives to update or invest in new equipment or processes, especially in bad economic times. In a survey that was conducted of a large number of businessmen who were asked the question, "What are the major factors that explain low productivity?", 49% of them gave "not enough capital" the first ranked position.⁵ As Table 2 shows, this hits those plants in the 15 to 30 year age range the hardest because their age or vintage of equipment is reaching the end of a typical machine life span and needs to be replaced.

Training

As with Business Conditions, this was a totally write-in topic and therefore very low in relative frequency. What is interesting to note about this general restraint is the very large negative regression coefficients for the industrial dummy variables relative to the white collar or service industries. This reflects the explosion and general

shortage of white collar technical personnel. It is also noteworthy that the frequency of write-ins was greater in the western and central states which most likely is a result of the move to the high tech areas of the southwest and west coast.

Other Restraints

This grouping is a real mixed bag and therefore no conclusion or trends can be drawn from the numbers. The only significance in reporting its contents is to keep in mind the wide variety of factors and issues which are included in management's perception of the productivity inhibitors.

Conclusion

Once again the reader should be cautioned against drawing any firm conclusions from this survey analysis. At best, some general trends or hypotheses can be developed for further research. But as mentioned earlier, the main question which must be asked in explaining America's current productivity dilemma is whether or not the restraints cited by the survey respondents have increased in intensity over the past few years to a point where they can be considered contributing factors in the current productivity decline. Comparing surveys from different time periods which were designed for different purposes by different researchers is always risky, but may begin to shed some light on this question.

In 1976, the Conference Board reported on a survey of 85 companies which probed at the barriers to increased labor productivity.⁶ Luckily, the proportion of unionized firms in that study was relatively equal to the CED survey, 66% versus 65%.

COMPARISON OF 1975 CONFERENCE BOARD SURVEY WITH 1981 CED SURVEY

	CONFERENCE BOARD %	CED %
	<u>(1)</u>	<u>(2)</u>
use of new technology	23.5	5.0
reorganization of work processes	50.6	38.1
narrow skill jurisdictions	67.1	
subcontracting	58.8	34.4
crew size	41.2	31.1
safety rules	14.1	41.0
production/quality standards	61.2	(3)
outmoded incentive plans	47.1	(3)

- (1) # of companies considering it a significant problem
- (2) # of plants identifying it as a productivity inhibitor
- (3) volunteered as an inhibitor by two plants

As can be seen from the above table, many of the traditional industrial relations restraints, such as use of new technology, subcontracting, and crew size, have lessened as an inhibitor, but flexibility by management in assigning jobs or rearranging job classifications seems to have become more difficult in light of massive employment losses. In addition, with the passage of more intensive OSHA legislation, managers view an increased restraints in the area of safety rules.

On the balance, however, it does not appear that there has been a significant increase in industrial relations barriers to improved

productivity. Although, improvements can always be made in this area to help improve labor productivity, it does not appear that the blame for the current U.S. situation can be even partially attributed to industrial relations institutional arrangements.

Notes

1. This assumes that there is a high correlation between corporate workforce reduction policy and actual practice.
2. A counterargument could be made that this is a survey bias resulting from the probe at traditional industrial relations institutional constraints, such as union work rules.
3. Harbinson, Frederick H., "Some Reflections on a Theory of Labor-Management Relations", The Journal of Political Economy, Vol. 54, No. 1, February 1946.
4. This holds true in all blue collar industries except steel. However, since the standard error is over twice the value the coefficient, this should not be viewed as indicative of an exception to the hypothesis.
5. Sentry Insurance, Perspectives on Productivity: A Global View, survey conducted by Louis Harris and Associates, not dated.
6. Hershfield, David C., "Barriers to Increased Labor Productivity",
} . } , July 1976.

TABLE 1: AVERAGE RESTRAINTS/FACILITY

CATEGORIES		MEAN	S.D.
TOTAL	(N=61)	4.3	2.4
<u>INDUSTRY:</u>			
STEEL	(14)	6.8	2.4
MFG	(13)	4.5	2.4
COMM	(7)	4.0	1.2
CONSUMER	(13)	3.4	1.8
SERVICES	(14)	2.8	1.6
<u>REDUCTION POLICY:</u>			
LAYOFF	(21)	5.8	2.5
OTHER	(40)	3.6	2.0
<u>LOCATION:</u>			
NORTH	(23)	5.0	2.7
SOUTH	(16)	3.6	1.9
WEST/CENT	(18)	4.4	2.3
<u>SIZE:</u>			
<250	(14)	3.6	1.7
250<X<1K	(18)	3.4	1.7
1K<X<5K	(19)	5.3	3.2
>5K	(10)	5.2	2.0
<u>AGE:</u>			
<15	(14)	3.2	2.3
15<X<30	(15)	5.3	2.1
>30	(15)	5.7	2.5
<u>UNION:</u>			
YES	(40)	5.3	2.3
NO	(21)	2.6	1.6
<u>PROD :</u>			
+	(36)	4.4	2.5
N.C.	(7)	4.0	3.1
-	(11)	5.0	2.4

TABLE 2: % OF PLANTS WITHIN EACH CATEGORY IDENTIFYING RESTRAINT

CATEGORIES		CHANGE	WORK RULES	MOTIV- TION	TIME OFF	GOVERN- MENT	BUSI- NESS	TRAIN- ING	OTHER
TOTAL	(N=61)	70	67	64	56	48	21	11	11
<u>INDUSTRY:</u>									
STEEL	(14)	93	93	93	79	86	29	7	7
MFG	(13)	77	77	62	46	46	31	1	31
COMM	(7)	71	57	100	71	29	14	-	14
CONSUMER	(13)	77	62	62	62	38	15	-	-
SERVICES	(14)	36	43	21	29	29	14	36	7
<u>REDUCTION POLICY:</u>									
LAYOFF	(21)	86	76	90	76	71	19	1	10
OTHER	(40)	63	63	50	45	35	23	13	13
<u>LOCATION:</u>									
NORTH	(23)	78	74	70	61	48	17	4	26
SOUTH	(16)	56	44	63	56	63	31	13	-
WEST/CENT	(18)	67	72	67	56	39	22	22	6
<u>SIZE:</u>									
<250	(14)	57	50	50	50	36	21	29	7
250<X<1K	(18)	72	72	39	39	39	22	11	6
1K<X<5K	(19)	79	74	79	63	53	21	5	21
>5K	(10)	70	70	100	80	70	20	-	10
<u>AGE:</u>									
<15	(14)	50	43	57	50	50	21	14	-
15<X<30	(15)	87	73	87	73	40	40	7	13
>30	(15)	93	87	73	73	60	20	7	20
<u>UNION:</u>									
YES	(40)	83	85	78	68	48	23	8	15
NO	(21)	48	33	38	33	48	19	19	5
<u>PROD :</u>									
+	(36)	72	61	72	58	44	22	14	14
N.C.	(7)	43	57	43	57	71	14	29	-
-	(11)	82	91	73	55	55	18	-	18

TABLE 3

MEAN RANKING OF RESTRAINS BY PLANTS WITH VARIOUS CHARACTERISTICS¹
 (STD. DEVIATIONS IN PARENTHESIS)

	CHANGE	WORK RULES	MOTIV- TION	TIME OFF	GOVERN- MENT	BUSI- NESS	TRAIN- ING	OTHER
CATEGORIES								
TOTAL (N=61)	5.10 (4.07)	8.36 (7.33)	4.98 (4.43)	3.72 (3.58)	2.80 (3.64)	2.26 (4.68)	.80 (2.37)	.77 (2.23)
INDUSTRY:								
STEEL (14)	5.93 (4.46)	14.93 (7.10)	6.29 (3.60)	4.21 (2.78)	3.79 (2.72)	3.07 (5.43)	.14 (.53)	.43 (1.60)
MFG (13)	5.77 (3.75)	8.38 (5.61)	4.00 (3.46)	4.00 (4.51)	2.54 (2.99)	2.77 (4.32)	.62 (2.22)	1.92 (3.20)
COMM (7)	5.43 (3.82)	5.14 (5.49)	9.43 (3.05)	4.86 (3.39)	2.00 (3.42)	1.00 (2.65)	- (-)	1.14 (3.02)
CONSUMER (13)	5.77 (3.35)	5.77 (5.33)	5.54 (5.11)	4.08 (3.55)	2.23 (3.24)	1.38 (3.38)	- (-)	- (-)
SERVICES (14)	2.86 (4.40)	5.79 (7.91)	1.86 (3.70)	2.07 (3.43)	3.00 (5.35)	2.43 (6.17)	2.79 (3.93)	.57 (2.14)
REDUCTION POLICY:								
LAYOFF (21)	5.90 (4.39)	11.33 (8.37)	6.62 (3.46)	4.48 (2.99)	3.57 (3.22)	2.05 (4.62)	.43 (1.57)	.66 (2.13)
OTHER (40)	4.68 (3.88)	6.80 (6.28)	4.13 (4.67)	3.33 (3.83)	2.40 (3.82)	2.38 (4.77)	1.00 (2.70)	.83 (2.31)
LOCATION:								
NORTH (23)	5.83 (4.71)	10.04 (7.70)	5.30 (4.26)	4.17 (3.76)	2.78 (4.20)	1.52 (3.40)	.09 (.42)	1.70 (3.05)
SOUTH (16)	4.13 (3.83)	5.38 (7.16)	4.31 (3.72)	4.06 (3.92)	3.88 (3.48)	3.19 (5.28)	1.00 (2.76)	- (-)
WEST/CENT (18)	4.50 (3.65)	8.11 (6.88)	5.89 (5.23)	3.39 (3.22)	2.28 (3.23)	2.89 (5.89)	1.72 (3.34)	.44 (1.89)

TABLE 3 (CONTINUED)

<u>SIZE:</u>								
<250	4.57	5.36	4.50	3.57	2.29	3.07	2.14	.57
(14)	(4.43)	(6.16)	(5.20)	(3.86)	(3.45)	(6.37)	(3.55)	(2.14)
250<X<1K	5.17	8.22	2.78	2.83	3.11	2.00	.94	.28
(18)	(3.45)	(6.72)	(3.70)	(3.76)	(4.79)	(3.85)	(2.75)	(1.18)
1K<X<5K	5.05	9.63	6.32	4.05	2.58	2.26	.11	1.47
(19)	(3.94)	(7.82)	(4.66)	(3.55)	(3.08)	(4.82)	(.46)	(3.06)
>5K	5.80	10.40	7.10	4.90	3.40	1.60	-	.60
(10)	(5.25)	(8.59)	(1.85)	(2.96)	(2.80)	(3.41)	(-)	(1.90)
<u>AGE:</u>								
<15	4.00	4.07	4.21	3.64	3.36	2.50	1.07	-
(14)	(4.45)	(5.14)	(4.02)	(3.89)	(3.67)	(5.29)	(2.73)	(-)
15<X<30	5.07	9.07	7.07	4.53	1.87	4.53	.47	.93
(15)	(3.01)	(8.37)	(4.54)	(3.16)	(2.88)	(6.33)	(1.81)	(2.49)
>30	7.67	11.47	5.53	5.00	2.60	1.73	.13	1.07
(15)	(4.01)	(6.17)	(4.47)	(3.64)	(2.59)	(3.59)	(.52)	(2.28)
<u>UNION:</u>								
YES	5.83	11.30	6.05	4.38	2.20	2.35	.43	.98
(40)	(3.84)	(6.97)	(4.32)	(3.41)	(2.75)	(4.74)	(1.68)	(2.44)
NO	3.71	2.76	2.95	2.48	3.95	2.10	1.52	.38
(21)	(4.22)	(4.05)	(3.97)	(3.66)	(4.79)	(4.69)	(3.25)	(1.75)
<u>PROD :</u>								
+	5.06	7.53	5.83	3.92	2.72	2.36	.86	.86
(36)	(3.64)	(7.45)	(4.61)	(3.61)	(3.93)	(4.82)	(2.32)	(2.26)
N.C.	2.14	9.57	2.71	3.57	3.86	1.29	2.57	-
(7)	(3.34)	(9.47)	(3.50)	(3.87)	(3.29)	(3.40)	(4.39)	(-)
-	7.00	10.00	5.27	3.73	2.82	2.36	-	1.45
(11)	(5.18)	(4.96)	(3.82)	(3.74)	(3.06)	(5.55)	(-)	(3.27)

¹NOTE: Time off and other have a possible range of 0-9; government and training range from 0-18; resistance to change, motivation, and business conditions range from 0-27; and work rules ranges from 0-36.

TABLE 4: REGRESSION COEFFICIENTS
(STD. ERRORS IN PARENTHESIS)

	CHANGE	WORK RULES	MOTIV- TION	TIME OFF	GOVERN- MENT	BUSI- NESS	TRAIN- ING	OTHER
MEAN	5.61	8.30	5.64	4.41	2.59	2.93	.55	.68
S.D.	3.93	5.38	4.10	3.24	2.87	5.12	1.50	1.91
LAYOFF	.95 (2.21)	-1.69 (3.03)	5.83 (2.31)	5.60 (1.83)	2.33 (1.62)	-3.84 (2.89)	-.79 (.85)	-.11 (1.08)
UNION	-1.11 (2.02)	4.05 (2.77)	2.52 (2.11)	1.03 (1.67)	-1.26 (1.48)	3.04 (2.64)	1.67 (.77)	1.34 (.98)
SIZE	-.39 (.23)	-.01 (.32)	.28 (.24)	.31 (.19)	.20 (.17)	.18 (.31)	.001 (.09)	.14 (.11)
AGE	.08 (.03)	.06 (.04)	-.06 (.03)	-.03 (.03)	-.02 (.02)	-.02 (.04)	-.01 (.01)	-.02 (.02)
SOUTH	-.87 (1.64)	-.35 (2.24)	.58 (1.71)	1.31 (1.35)	1.59 (1.20)	2.14 (2.14)	.91 (.63)	-1.54 (.80)
WEST	-1.59 (2.63)	6.50 (3.60)	-.22 (2.74)	-2.05 (2.17)	-.05 (1.92)	1.45 (3.43)	2.82 (1.00)	-1.59 (1.28)
CENTRAL	-1.41 (1.75)	-.38 (2.39)	.30 (1.82)	.12 (1.44)	.64 (1.28)	2.96 (2.28)	.73 (.67)	-1.37 (.85)
STEEL	1.99 (3.25)	10.82 (4.44)	-1.59 (3.39)	-2.94 (2.68)	2.98 (2.38)	-4.58 (4.24)	-3.97 (1.24)	-.40 (1.58)
MFG	1.71 (2.52)	4.92 (3.45)	4.05 (2.63)	4.98 (2.08)	4.50 (1.84)	-6.85 (3.29)	-3.46 (.96)	1.34 (1.22)
COMM	2.91 (3.19)	-.61 (4.37)	7.70 (3.33)	5.00 (2.64)	3.12 (2.34)	-10.11 (4.16)	-4.84 (1.22)	.87 (1.55)
CON	1.68 (2.40)	2.97 (3.29)	3.28 (2.51)	2.02 (1.98)	2.75 (1.76)	-8.06 (3.13)	-4.11 (.92)	.28 (1.17)
R ²	.31	.59	.36	.37	.34	.28	.53	.31

¹ coefficient and std. error are 10³

² significant at 10% level (one tailed test)

³ significant at 5% level (one tailed test)

⁴ significant at 2% level (one tailed test)

"Beyond doubt, the greatest problem, the danger, which above all others most threatens not only the success, but the very existence of the American Federation of Labor is the question of jurisdiction."

Samuel Gompers, in his annual report to the American Federation of Labor convention, New Orleans, Louisiana, November 1902.