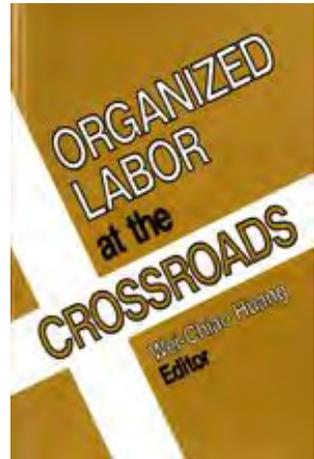

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Innovation or Confrontation

Alternative Directions for American Industrial Relations

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The first half of the 1980s witnessed joint experimentation and extensive innovation with new forms of labor-management relations. In our earlier work (Kochan, Katz, and McKersie 1986) we interpret both tendencies as signals that many of the principles of what we term the New Deal industrial relations system are no longer well-suited to the contemporary environment or to the interests of workers, employers, or the broader society. In that work we used a three-tier model to describe both the key principles in the New Deal industrial relations system and the efforts of labor-management to move to a new system. The focal point of the New Deal system was the middle tier, i.e., the level at which unions and employers negotiated collective bargaining agreements over wages, hours, and working conditions. The key to the success of this model was that collective bargaining “took wages out of competition.” At the top tier of the system, the governing principle was that it was management’s sole job or prerogative to manage the enterprise; unions and workers were to negotiate over the impacts of strategic management decisions if these decisions affected wages, hours, or working conditions. At the bottom tier, the workplace, the collective bargaining agreement specified in detail worker rights and obligations and provided workers a voice in day-to-day administration through the grievance procedure. As we will see, the innovations under way in the 1980s challenge each of these New Deal principles and practices.

At the workplace, for example, efforts are under way in many settings to introduce more employee participation and greater flexibility in the organization of work and utilization of people. At the level of collective bargaining, negotiations continue to play an important role. The inability of unions to take wages out of competition by standardizing wages and benefits across the product market, however, has forced the parties to give greater attention to employment issues and in some cases to experiment with new wage criteria and formulas that link wage increases to more firm-specific performance. Innovations under way at the level of strategic decisionmaking stand in direct contrast with the New Deal principles regarding managerial prerogatives. In a limited number of settings, management and union leaders are experimenting with different ways to involve union leaders earlier and more deeply in decisions that heretofore would have been the sole province of management.

Some innovative developments in industrial relations have proven fragile. In part, this is because the early 1980s have also been a period of increasing crisis and bitter conflict between labor and management in American society. While strikes were less frequent in the 1980s than in previous years since World War II, those that did occur were frequently hard-fought struggles for survival, rather than tactical extensions of the collective bargaining process. More than 40 percent of union members covered under major collective bargaining agreements experienced wage cuts or one or more years of no wage increase between 1980 and 1984. Many others experienced significant losses in real wages and decreases in coverage or benefit levels in medical insurance or other fringe benefit areas. Moreover, the long-term decline in the rate of union membership accelerated during the early 1980s. This was partly a reflection of overall employment declines in the sectors of the economy where union membership is highest, but it was also the result of greater and more open employer opposition to union representation in newly opened facilities (Dickens and Leonard 1985; Farber 1985). The early 1980s were also characterized by an increasing polarization in the relationships between the labor movement and government policymakers. Union representatives' frustrations in organizing and representing workers in

the context of existing collective bargaining policies and procedures were heightened by a sense of powerlessness to modify these policies.

The central question underlying the research summarized in this paper is whether the innovations and experiments in labor-management relations will diffuse to a broader array of bargaining relationships and become institutionalized as regular aspects of labor-management relations. Or alternatively, will they be aborted by the broader conflicts between labor and management or between labor and government policymakers over union representation and organization rights, or over the very role of unions in society?

To address this issue, we will draw on a study of innovations in a panel of nine companies and more than a dozen associated local and international unions. These parties participated in a two-year study conducted by members of our research team with the support of the U.S. Department of Labor's Bureau of Labor-Management Relations and Cooperative Programs. These cases were selected because in each the parties had initiated one or more of the types of innovations that we believed challenged prevailing principles of the New Deal system. As such, these are neither representative nor random samples from the universe of contemporary collective bargaining relationships. Instead, they are illustrative examples of the different avenues through which labor and management can change their bargaining relationships in ways that substantially depart from the traditional New Deal model.

Our sites and the nature of changes occurring in each are outlined below and classified in Exhibit 1 within the three-tiered framework we use for analyzing contemporary employment relationships.

The United Automobile Workers Union (UAW) and General Motors (GM)

Our focus in this case was on the new Fiero and Lake Orion assembly plants, both of which feature a fundamental reorganization of work design. The roles of labor and management have been significantly modified to afford employees greater autonomy, less supervision, and, in the case of Fiero, union representation in all plant-level strategic and administrative decisions. During our research, the joint design and creation of the Saturn Corporation

was also solidified and the GM plant in Fremont, California, was reopened (after a two-year shutdown) as a joint venture with Toyota. We followed some aspects of both of these developments as well.

The Amalgamated Clothing and Textile Workers Union (ACTWU) and Xerox

The seven plants in Xerox's home manufacturing complex (near Rochester, New York) show how narrowly focused quality circles can evolve to encompass multiple forms of employee participation and innovation in the organization of work, all of which is reinforced via contractual language including a no-layoff guarantee, joint decisionmaking regarding outsourcing, and gain-sharing. Further, the parties have built on a history of informal consultation about strategic issues with the establishment of joint "horizon" planning committees on human resource management and other issues, the joint design of a new manufacturing facility, and union involvement in new product development.

The Air Line Pilots Association (ALPA), the International Brotherhood of Teamsters (IBT), the Association of Flight Attendants (AFA), and the Air Transport Employees (ATE) Western Airlines

A financial crisis brought on by industry deregulation led Western to pose concession demands to all four unions. Though each of the negotiations was different, all four unions ultimately emerged with significant minority stock ownership for the members, a seat on the board of directors, and, in one case, an agreement to pursue greater employee participation in daily decisions. Of particular interest is the great variation in the strategies selected by the four unions.

The International Association of Machinists (IAM) and the Boeing Corporation

Rapid advances in manufacturing technology led the union to push for joint roles in the exploration, selection, and implementation of new technology. The operation of the joint structure that evolved

over the course of two contract cycles in Boeing's Seattle, Washington facility and a parallel quality circle effort were the focus of this research.

The Aluminum, Brick and Glass Workers Union (ABGWU) and Alcoa

A rolling mill, in a highly competitive portion of the aluminum industry, was the setting in which these parties attempted to guide employee involvement activities and work reorganization through a period of major wage and benefit concessions. The concessions also reflect decentralization of bargaining in the industry. We explore the consequences within the local union and in a range of joint activities.

The United Automobile Workers (UAW) and the Budd Company

These parties have sought to sustain employee involvement initiatives, limited just-in-time delivery, and quality control improvements. These changes have been prompted by customer pressure in the context of the highly competitive auto supply industry. During our research, efforts were initiated to link plant-level participative activities to cooperation at the corporate/international union level. Also, one local negotiated an agreement to accept significant work rule changes and the use of a team concept approach to work organization in return for reinvestment in its facilities.

The Diesel Workers Union (DWU) and the Office and Clerical Unit (OCU) and Cummins Engine

After nearly a decade of experimentation with the design of non-union facilities based on socio-technical principles, the parties are now trying to integrate these innovations into the company's unionized home manufacturing complex. We have followed the diffusion of new systems for the organization of work, as well as related changes in collective bargaining as they have evolved during a period of layoffs and management turnover at the corporate level.

The Paperworkers Union and Boise Cascade Corporation

Two decades of low performance in the company's newest and largest facility, partly connected with an increasingly complex set of work rules, led to company bargaining demands for a sweeping revision of the contract and hundreds of attached memorandums of agreement. After a lengthy strike, the company prevailed, and imposed a contract with only four job classifications, a team-based, flexible work organization, a no-layoff pledge covering current employees and substantial wage increases for those affected by the job classification changes. Critical questions in this case concern the implementation and evolution of such changes when they are imposed by hard bargaining.

The United Rubber Workers Union (URW) and Goodyear Corporation

Gradually, over about 10 years, the parties have made a series of incremental changes in the organization of work and the structure of union-management relations in their Lincoln, Nebraska facility. We were interested in the process and results of these changes.

Longitudinal case studies were conducted for each site by one or more members of our research team. Interviews ranging in number from 15 to over 100 were conducted in each case. In some of the cases, we were also able to draw on previous case studies or related research emerging from our earlier work. Employee surveys were conducted in three cases (Western, Boeing, and Xerox). In one case (Boise Cascade), we were able to conduct a formal economic analysis of the effects of the changes introduced.

The Processes of Institutionalization and Diffusion

The concept of institutionalization has a long history within the behavioral sciences. It rests, in part, on Kurt Lewin's (1948) seminal studies of social change, which positioned institutionalization as the end point of a multistaged change process. The first stage of the process

is often referred to as the process of “unfreezing” current organizational practices. Stimulating or motivating change is usually some crisis or set of severe external pressures. The second phase of the change process normally involves implementing a set of experimental or demonstration projects. The focus at this stage is on the factors that lead to and then maintain the parties’ commitments to the proposed changes, and also on the evaluation of initial results. The third phase is the institutionalization phase, viz., the process by which changes are integrated into ongoing practices within the organization. This can be thought of as a refreezing process, though one of our conclusions is that this final institutionalizing stage is best thought of as dynamic, rather than static in nature.

We will focus on the second and third stages of this model and examine the management and union strategies and actions that affect the institutionalization process. While we recognize that developments in the external environment also have important effects on the course of these innovations, we have discussed the importance of these external factors elsewhere (Kochan, Katz, and McKersie 1986). Our goal here is to elaborate more fully on the internal dynamics of these processes.

We define institutionalization as the dynamic process by which daily practices and decisionmaking at the workplace, collective bargaining, and strategic levels of industrial relations are linked so as to respond to the environment confronting the parties and their independent needs. We believe that achieving this type of effective *linkage* in today’s environment requires fundamental transformations in practices across all these levels of industrial relations activity. In this paper, we focus on the following specific practices: employee participation, flexible forms of work organization, participation in new technology decisions, and participation in strategic management decisions. We see these as central features of what might be thought of as a new industrial relations system more responsive to the demands of the environment and the needs of the parties. At the same time, however, we don’t claim that these exhaust the range of innovations under way in American industrial relations or that they constitute the sole characteristics of any new system.

Finally, we are interested not only in the conditions under which these changes permanently transform a given labor-management relationship,

but also in how widely these innovations will be diffused throughout a given organization and across North American industry. A final section of this paper will therefore discuss the prospects for the wider diffusion of these changes.

Employee Participation Processes

By far the most frequent innovation initiated in industrial relations in the early 1980s was some form of employee participation. Some type of QWL or similar participation effort was initiated in eight of the nine cases in our panel. Many of these efforts came to be tied to work organization changes and technological change, which are discussed in greater detail in the following sections of this paper. The focus here is just on participation.

An examination of the evolution of these various processes indicates that in no case has it diffused smoothly over time to a point where a large majority of employees are now actively participating in QWL problemsolving teams. On the other hand, it has been completely abandoned only in one case. Typically, the parties experienced an initial period of growth and enthusiasm, followed by what appears retrospectively as a predictable crisis. This crisis was usually characterized by a decline in further employee volunteers to participate in the process, resistance by middle and lower managers, and opposition by some union leaders, all of which is often prompted by developments in other aspects of the management organization, the union organization, and the collective bargaining relationship. Thus, the resulting plateau in the growth of the QWL initiative raised fundamental questions about the extent to which it could or should affect the economic interests of the firm, the employees, and the union. The parties were then forced to choose whether to reinforce or abandon the effort.

Because of the relatively modest costs of initiating QWL processes, we have concluded they can serve as useful *starting points* for building trust and exposing employees, supervisors, managers, and union leaders to participative methods of interaction and joint decisionmaking. However, it is increasingly clear that they cannot remain in this narrowly-

focused, adjunct mode. Where the parties have recognized this, what started out as a narrowly-focused QWL process became a catalyst for participative problemsolving methods in a wide variety of areas involving work organization, the introduction of new technology, strategic planning, and planning for new facilities.

This transition is politically difficult, however, since the broader the scope of issues addressed in a participative mode, the more likely the process is to touch on issues covered in the collective bargaining contract or other areas of management decisionmaking usually designated as off-limits to the QWL process. It is not surprising, therefore, that many QWL processes never make this transition. Yet, standing alone, the narrow forms of QWL are not likely to make a sufficient contribution to the competitive strategies and objectives of the firm, or to the economic and social interests of workers and the union, to sustain widespread support.

The key determinant of whether or not the transition to larger aspects of the relationship is made successfully appears to be the willingness of top-level management and union leaders to assert their commitment to the principles of problemsolving and participation in the face of new, potentially contentious situations. By doing so, they can transform what was an incremental program for diffusing QWL teams into a set of principles to be applied to a range of crises or opportunities that might benefit by problemsolving processes.

Work Organization Reforms

During the first half of this decade many employers pressed hard to increase flexibility in work rules and in the organization of work. In a broader survey, Cappelli and McKersie (1987) note that in the majority of cases, management pressed for work rule changes primarily so as to reduce costs by shedding labor. In some cases, however, the goal was also to introduce new concepts of work organization. This was especially true where (1) the economic and technological environments facing the parties have changed in significant ways; (2) an alternative model of work organization was available to the parties to draw on (often

from elsewhere within the firm); and (3) new employment security provisions were used to gain acceptance of the changes.

Employer interest in new forms of work organization arose out of a desire to tap the motivational advantages usually associated with broad task designs (Hackman and Oldham 1980) and the need to overcome the rigidities and high costs associated with traditional work structures and rules. In addition, new technology that promises increased flexibility in production requires, for its optimal performance, equally flexible human resource management systems and work organization arrangements (Shimada and MacDuffie 1987). Thus a concept that first gained favor among behavioral scientists as a means for increasing motivation and job satisfaction through broader job designs (Hulin and Blood 1968; Turner and Lawrence 1965; Walton 1980) has now gained the support of many line managers because of its strategic importance in lowering costs, increasing quality, enhancing adaptability, and achieving full utilization of new technology.

In our panel, we observed all nine firms either implementing changes in work rules and new work organization design principles, or planning or attempting to implement these concepts for selected operations. Two firms (GM and Xerox) used these concepts in designing new facilities; four firms (Xerox, Boeing, Western, and Boise Cascade) negotiated work rule changes in collective bargaining; four firms (Alcoa, Cummins, GM, and Xerox) used problemsolving principles and processes to introduce these concepts into selected work units within existing facilities; and two firms (Boeing and Budd) were in the process of discussing the introduction of flexible work systems on a selected basis at the time our case studies ended.

New Facilities

By far, the most successful introduction of flexible work organization concepts has been in new or "greenfield" worksites. This is hardly surprising, since at a new site a new workforce can often be selected based on the ability and desire to work within flexible or teamwork systems. In the 1970s, most of the plants that opened on this basis were (and still are) nonunion. More recently we have seen a number of new or completely refurbished unionized plants using flexible work systems.

Several examples from our panel sites illustrate the use of these concepts in the unionized worksites.

GM. Consider the way self-selection, even in a unionized setting, contributed to the different experiences of GM's Pontiac Fiero and Lake Orion plants. Both were new or completely remodeled and retooled facilities, and the human resource management strategy for each was based on the team concept, or, as GM calls it, the "operating team" concept. Workers from both plants came largely from a Fisher Body GM plant that had been closed and was later refurbished (retooled) to form the Fiero assembly plant. The workers were told prior to choosing to stay at the Fiero site that the plant was designed around a teamwork concept and that anyone who requested to stay at the plant should be prepared to work under this type of system. This undoubtedly created a self-selection process among those who requested to stay at the Fiero plant, rather than work at the nearby Lake Orion plant. The union leaders who chose to go to Orion initially sought to fully replace what they saw as a pre-set socio-technical plant design, while the managers and union leaders at Fiero were engaged in a deeper, joint-design process from the outset.

The greenfield sites opened on a nonunion basis in the 1970s relied on human resource management professionals to provide the input into the design of the new work systems. In contrast, the cases in our panel that were most successful in introducing these new concepts involved workers and union leaders in early stages of the design and planning processes.

Xerox. In 1983, the company decided it needed to build a new toner supply plant. Rumors leaked to the union that the company planned to build the plant in the South because of lower utility, tax, and labor costs. The union leaders questioned management about its plans and proposed to work with management to see if the plant could be built and operated competitively in the Webster manufacturing complex. The company agreed, and a set of workers and union representatives were designated to work with manage-

ment representatives to examine and test new work and machine design concepts while union and company representatives began negotiations with the local public utility and local government to lower energy and tax costs for the new facility. The plant design and equipment selected together promised significant productivity gains and the negotiations with the local government and utility representatives were successful. The result was that the plant was built in the Webster complex at costs and projected productivity levels equal to or better than the levels forecast for the plant if it was relocated in the South.

GM. The most widely publicized joint union-management plant design in the GM system involves the new Saturn Division. After the company's engineering and financial planners decided in the early 1980s that it was unprofitable to try to build a small car in the U.S., GM signed import agreements with two Japanese firms. In 1983 GM addressed the issue again, but this time invited the UAW to participate in the planning process. The result was an agreement to build small cars under a new division of GM (Saturn). The design principles included in the new agreement provide for: (1) operating teams of workers on the shop floor in a single job classification; (2) consensus decisionmaking principles throughout all levels of the organization; (3) UAW representatives facilitating the operating teams and being represented in the management structure at all levels of the organization from the shop floor to the plant management administrative staff, to the "Strategic Advisory Committee" which provides the link between the Saturn Division and the executives of GM.

While Saturn is the most visible example of new flexible work systems in General Motors, the corporation has sought to introduce these concepts in most of its new or newly refurbished plants. To date, over a half dozen such facilities are operating effectively. Still, GM's new plants have not all been equally successful, or at least have not followed the same paths in introducing the new team concepts.

Again, the comparison of the Fiero and Orion plants is instructive. General Motors management designed the technology and manufacturing

plans for the Orion plant around the use of flexible work systems. For a variety of reasons, the union was not actively involved in this process. Under the national contract, however, management had the right to design the plant and start it up with the new work system. After one year, management was then responsible for negotiating an initial contract with the local union, in which the job classifications and related work system arrangements were negotiable. After a protracted period of negotiations and considerable conflict between local union leaders and plant managers, a distinctive local agreement was negotiated that allowed workers to choose between working under the pay-for-knowledge compensation plan and flexible work systems, or under a traditional pay system (though still with the requirement of knowing a minimum of two jobs in a given area). Thus, instead of a jointly developed system, the parties in effect split the difference.

In contrast, local union representatives worked with management to design the work system for the Fiero plant. This experience also facilitated the development of a broader role for the union in the management of the plant. This was all agreed to at Fiero prior to the start-up of production, and no deep conflicts between the parties occurred in subsequent negotiations or in the administration of the initial agreement.

The differences between the Fiero and Lake Orion cases suggest that failure to develop a joint commitment to the design principles prior to their implementation will increase the likelihood of conflict and resistance to these new forms of work organization and compensation. This is especially the case with workers and/or union representatives whose prior experiences are limited to the traditional system. Once the new system is implemented, however, it represents enough of a structural change and it often begins to attract enough supporters that the burden of change then falls on those seeking to return to the traditional system.

Retrofitting Existing Facilities

Our cases suggest it is much more difficult to retrofit existing facilities with new work systems. Indeed, throughout the U.S. and Canada, there are very few cases where the work organization or work rules covering a complete facility and the complete workforce have been changed by way of a cooperative union-management problemsolving process.

The only case in our panel where a complete shift from a traditional work system to a more flexible system occurred was a case where management took a long strike and imposed the new system as part of the strike settlement.

Boise Cascade. In 1984, after management had made several unsuccessful attempts to reach informal agreements with union leaders to eliminate what management viewed as an overly rigid set of job classifications and work rules, a nine-week strike over a new contract occurred in the company's DeRidder mill. This was a relatively new mill (opened in 1967) and represented a massive billion dollar investment; but it had a poor productivity and profitability record. The major issue in the strike was management's demand to eliminate the large number of past practices that had built up over the years, and to collapse the work organization structure down into a small number of job classifications. After nine weeks the union accepted management's terms—largely in response to threats from this high-wage employer that it would hire a replacement workforce. The settlement provided for a no-layoff guarantee, and a guarantee that no worker would face a pay reduction. In fact, a majority of workers received large pay increases as they were transferred to the new pay structure. A year and one-half after the end of the strike, the workers voted to continue the new system. Still, the leadership of the union is in flux and plant performance has not shown dramatic improvements. Thus, it remains to be seen whether this avenue for innovation will be effective and whether it can be sustained.

This case illustrates that it is very difficult to use a problemsolving approach to achieve an immediate and complete change within an existing facility. The changes that management wanted were just too vast for the union to discuss until it had no other choice. It may be that only a hard bargaining strategy by management, with a high probability of a strike, can achieve wholesale change all at once. Even then, as part of the new arrangements, the employment and income security interests of the incumbent workforce need to be addressed and the ultimate outcome remains uncertain.

Because it is difficult to change the work organization of an entire plant all at once, the more typical strategy observed in the panel was an incremental process in which natural “opportunities” (threat of job loss, prospect of obtaining new investments, etc.) provided the stimulus to change. What, then, has been the experience with the incremental retrofitting of existing facilities? Here our cases provide much evidence.

Xerox. In 1982, after management announced its intent to contract out wiring harness production, the union persuaded management to place the decision on hold and to establish a special study team to explore changes in the organization and management of the wiring harness unit that would make it cost competitive. The team’s recommendation cut the costs of production by an estimated 28 percent, and thereby saved the work. However, these recommendations required changes in the managerial formulas for calculating overhead, revising supervisory ratios, and other decisions that had to be made by top management. The changes also involved a number of modifications to seniority, job classification, transfers, and temporary work. Thus, the task force’s recommendations had to be referred to the union and company bargaining committees for approval. Approval was granted as part of the 1983 contract. In fact the negotiators went an important step further by agreeing to use the wiring harness study team concept as a model for dealing with uncompetitive operations in the future. As noted earlier, employment and income security guarantees for incumbent workers were included as part of the agreement. Since this agreement, five other study teams have been formed, four of which have kept work in-house—leading to a range of modifications in work organization in different areas.

Cummins. Innovation occurred here in response to a management announcement that a line responsible for a particular engine was to be shut down and moved from the unionized Columbus, Indiana plant to the company’s newer nonunion plant (one of the most highly publicized nonunion team-concept plants opened in the 1970s) in Jamestown, New York. The Diesel Workers Union asked

to have an opportunity to save the work. Both parties ultimately agreed to a reorganization of the work into fewer job classifications and other flexible arrangements. This line now operates with these new arrangements inside a plant governed by traditional concepts and work rules.

A similar development occurred at the Indianapolis parts center, a distribution operation that was scheduled to close. The company agreed to keep this work under the jurisdiction of the DWU if costs could be brought down to a level competitive with non-union options. The union agreed to eliminate the multiple job classification system and replace it with a single pay grade and flexible movement of workers across tasks. These workers earn more than do comparable workers in another unionized parts center that is organized in a traditional fashion. However, the Indianapolis employees also have more duties assigned to them than the employees working under the traditional system.

It should be noted that this pay and progression plan had been introduced by management at Cummins in several successive rounds of negotiations dating back to 1979. However, each time rank-and file opposition kept the union from agreeing to it. Thus this case illustrates again how the threat of job loss has been used by employers to achieve changes in work rules and work organization for specific groups—especially in the face of predictable general opposition by the workforce.

Just as the threat of job loss has been used to induce changes in work organization, so too has the potential for gaining new work or new investments been used as a lever to introduce changes. In the Xerox toner plant example it was the union that took the initiative in getting management to consider locating the new plant in Rochester. At Fiero, workers knew that if they were not able to assemble the new Fiero sports car at low costs, the plant was likely to be permanently closed, as the site was too small for other operations. In other cases in our panel, management initiated discussions with the union over the possibility of locating work in an existing site, or allocating new investments to bargaining unit personnel, in return for adopting flexible work organization concepts. We expect this to happen with increasing frequency in the future.

Introduction of New Technology

The introduction of new technology represents one of the oldest avenues for changing industrial relations, since nearly all changes in technology have effects on the number, mix, and content of jobs. The advances in micro electronics that fuel the current wave of technological innovation have these traditional effects. There is a growing consensus among technology and work specialists, however, that the specific effects of these new technologies vary depending on the objectives driving their use, the means by which new technology is implemented, and the links forged between the technology and the human resource/industrial relations practices of the parties (Walton 1983; Pava 1985; Shimada 1986).

The introduction of new technology clearly serves as a major opportunity for unfreezing existing industrial relations practices and traditions. We also see it as an extremely powerful avenue for stimulating and institutionalizing innovations. At the same time, technological change can serve as a major source of conflict, resistance, and struggle for power between the parties, since it strikes so deeply and directly at the vital interests of the firm, the workforce, and the union.

All of the propositions or principles we suggested involving changing work organization arrangements apply equally to the introduction of new technology. However, two additional propositions are suggested by our work in progress with panel members involved in major technological innovations. First, when management makes massive investments in new technologies without consciously and successfully using the new investments in order to introduce innovations in industrial relations practices, it faces a *longer learning period* for making the technology work, greater resistance by employees to the fullest utilization of the technology, and less capacity for continuous learning and improvement in the performance of the new technology and work system. Second, technology strategies that fully integrate human resource considerations require *fundamental and lasting changes* in the roles of union leaders, workers, and managers, in their relationships, and in the design of the organization. Major technological change will inevitably have implications for the social side of the organization. If these are not

addressed directly there will inevitably surface important questions about organizational structure and the orientation of employment relations. We will draw on work under way at two panel firms to illustrate these points: GM and Boeing.

The joint venture between GM and Toyota at New United Motors Manufacturing Incorporated (NUMMI) in Fremont, California provides a good deal of evidence regarding how effective integration of technology and human resource management and organization design principles can improve industrial relations and organization performance. The NUMMI experiment also illustrates how the concept of technology must itself be broadened to encompass the total array of organization design and human resource management principles and practices. The NUMMI plant relies on principles of high worker motivation, organizational learning, flexible job and work organization, advanced inventory and quality control, and employment security, many of which were first introduced in Europe by socio-technical design theorists (Trist 1982) and now are being adopted in varying degrees by an increasing number of American firms and unions (Shimada and MacDuffie 1987).

NUMMI. The central feature of the production system used at NUMMI is its deep dependence on achieving effective performance via the human resource management system. It cannot work unless workers have the proper skills, training, and motivation. Thus, Shimada and MacDuffie argue that achieving and sustaining these human resource outcomes is a necessary condition in order for the just-in-time inventory system, the introduction of quality control into production jobs, the flexible system of work organization, and the related organization design and hardware features of this production system to produce high quality goods at low costs.

While there has been no comprehensive quantitative comparison of the performance of this plant with other auto plants in the U.S., there are enough preliminary quantitative and qualitative data to suggest that it is performing well on quality and cost criteria. It has continued to be evaluated favorably by the workers, union leaders, and managers involved. One study shows, for example, that the plant's productivity and quality performance exceeds the

performance levels of a traditionally structured plant with a traditional union-management relationship, and is generally comparable to the quality and productivity levels found in Toyota's major production facility in Japan (Krafcik 1986). Moreover, UAW and GM management both continue to stress the importance of learning from the NUMMI experiment when introducing new technology and changing work organization practices in other facilities.

Boeing. In 1983 Boeing and the IAM included a New Technology clause in their collective bargaining agreement, which provided for periodic management briefings about plans for new technology and established a Joint Training Advisory Committee (JTAC) to oversee training and retraining of employees affected by new technology. In the 1986 contract negotiations, the parties took another step toward a joint approach to planning for and managing the introduction of technological change by establishing a Pilot Project on New Technology Committee (PPC). This joint committee is charged with the responsibility of designing, implementing and evaluating experimental projects involving new technology and new work organization arrangements. It represents another example of the use of collective bargaining process to endorse and sanction problemsolving and joint planning principles on a project-by-project basis where opportunities for new approaches arise. While it is too early to evaluate this new agreement, it does provide the protective language and the joint commitment needed not only for the initial experiments to be conducted but for the parties to learn from these experiments and to diffuse the experience and knowledge gained from them to other parts of the organization.

The NUMMI experience is made especially significant when compared to the approach to introducing new technology typically followed by American firms. Technology is usually seen as a deterministic factor to be purchased or developed and implemented by management and technical engineering experts. Even companies that emphasize participative principles on a wide range of other issues often fall back into the traditional stance of viewing technology as fixed and relegate organizational and human resource issues to a secondary status

(Goodman et al. 1986). At Boeing, even though considerable progress has been made in giving the union access to information on technology at the strategic level, to date the implementation process at the workplace has followed a fairly traditional form. Labor-management deliberations have focused primarily on the consequences of new technology and not on issues of design. The new technology language introduced in the 1986 labor agreements at Boeing represent the parties' determination to break out of this traditional pattern.

Union Participation in Strategic Management Decisions

In the examples discussed so far in this report we have focused on changes initiated at either the workplace or the collective bargaining levels of the labor-management relationship. We have followed the extent to which the changes have broadened and deepened the union's role in areas of decisionmaking that have traditionally been reserved to management. We have also seen how the union's role can be even further circumscribed by unilateral management decisions. One of our central propositions is that broader and deeper union roles at the strategic level of management decisionmaking are necessary if the innovations in employee participation, work reorganization, and introduction of new technologies and work systems are to be sustained over time.

At the same time, we have found that participation at the strategic level must not only help produce tangible economic benefits for the employees and the firm, but must be accompanied by active communications, education, and participation efforts at the workplace level. This is because workers will not support representation or participation in managerial decisionmaking as a right or a matter of principle. Instead, the majority of workers show little interest in representation at this level of decisionmaking unless and until they see the links between decisions made at this level and their own long-term economic welfare and security, as well as with their everyday work experiences. When these links are made, however, worker interest may well increase, and the probability that support for this type of representation and involvement

will be sustained over time may also increase. Our case study at Western Airlines (Wever 1987) illustrates these points.

Western. In collective bargaining in 1983 and again in 1984, the four major unions representing employees at Western Airlines made wage and work rule concessions, and in return were granted (1) four seats on the company's board of directors, (2) a profit-sharing plan, and (3) an employee stock ownership plan. These concessions and the quid pro quos were in effect when Western reached an agreement to merge with Delta Airlines in September, 1986. As a result of the merger, Western employees were to be absorbed into the Delta workforce. Since only the pilots at Delta are unionized (and are part of the Airline Pilots Association, as are the Western pilots), all other employees would lose their union representation unless their unions won a representation election involving all of the Delta and Western employees in their respective bargaining units.

Survey data collected from Western employees about one year prior to the merger demonstrated quite clearly that these employees evaluated board representation (and other quid pro quos) primarily on the basis of their economic effects. Employees were asked to indicate which of the quid pro quos they valued most: (1) board membership, (2) stock ownership, (3) profit sharing, or (4) employee involvement at the workplace. The clearest survey result was that employees valued board membership the least of all these options. Employee involvement at the workplace was given a higher priority than board membership. Profit sharing and stock ownership were valued even higher than employee involvement, suggesting that employees were most interested in using these new compensation arrangements to recover the wage concessions.

The merger with Delta does appear to enhance the security of the jobs of Western employees. In addition, our calculations of the effects of the profit sharing and the stock ownership provisions suggests that the average Western employee would recoup between 75 percent and 90 percent of the wage concessions made in 1983 and 1984. At the same time, our case study evidence

suggests that the union representatives on the board had little significant influence over the merger negotiations or the terms of the merger agreement, or over other basic strategic business decisions of Western. Thus, this case produced mixed results. The existence of profit sharing and stock ownership did help employees recoup a substantial portion of their economic concessions, while the merger bolstered their employment security. However, all but one of the unions would lose their representational status in the merger and that all employees would lose representation in strategic management decisionmaking. Thus, in this case involvement in strategic decisionmaking was only a short-run quid pro quo that was not sustained through the change in ownership.

Board representation is only the most visible and formal type of participation in strategic decisionmaking found in our panel. More frequent forms of such participation are ones that evolve incrementally as workplace participation processes expand and top union-management steering committees are established, or as part of work organization reforms, or when decisions to make major new investments or technological changes require agreements between top-level union and management leaders. These opportunities for innovations make it necessary for union and management decisionmakers to choose between expanding the scope of participation and joint decisionmaking, and thereby sustaining the innovation process, or limiting its scope and often its momentum. Several examples from the panel illustrate this point.

Examples of involvement in strategic decisionmaking that evolve incrementally, as expansions of innovations begun at lower levels of the bargaining relationship, include the participation of UAW representatives on the plant manager's steering committee at GM's Fiero plant, and the participation of ACTWU representatives on Xerox's human resource strategic planning teams and in the design of the work system and cost analysis of the new toner plant. These and other examples noted earlier suggest that the "bottom-up" incremental expansions of participation are more likely than formal provisions for board representation to achieve the types of linkages among workplace, collective bargaining, and strategic interactions that we believe are essential in sustaining strategic level participation.

Strategic participation represents a fundamental departure from traditional U.S. industrial relations policy and practice, however. It requires that management accept the union in the organization, and that both parties (and ultimately policymakers) agree on the broader roles of the union. Unless management is prepared to strengthen the role and status of the union, and unless union leaders are prepared to break from their traditional stance of leaving the task of managing to management, strategic participation is unlikely to be initiated or sustained. Because of the important conditions necessary for management and union leaders to accept this innovation, we do not see this type of innovation diffusing to a broad range of settings unless major changes in public policy reinforce changes in the values and strategies of both management and labor. We also believe a broader and deeper role for worker representation at this level is absolutely needed to sustain, diffuse, and eventually institutionalize the other innovations discussed in this paper.

Institutionalization of Innovations Within the Panel Sites

The diversity of situations faced by the parties in the sites studied in this research preclude simple comparisons. Yet we can use the comparative experiences of the cases to summarize a number of the key lessons they offer about the conditions that facilitate institutionalization of changes within bargaining relationships that have initiated innovations. We must also be careful, however, to avoid over-generalizing from the select and limited sample upon which we have drawn these observations. Therefore, the following summary statements might better be interpreted as hypotheses worth testing in future research or against the personal experiences of labor and management leaders engaged in similar activities.

While we have discussed participation, work reorganization, technological change, and union participation in strategic management decisionmaking as discreet starting points for industrial relations innovations, it is clear that none of these can survive over time independent of others. Instead, when combined in ways suited to particular settings, they offer a higher probability of being institutionalized in on-

going practices. Indeed, when the full range of innovations discussed here are integrated in a single bargaining relationship, they produce a system of industrial relations that is fundamentally different from the traditional New Deal model.

For example, a more complete transformation of practice has occurred at Xerox and Fiero than at the other sites in the panel because the parties in these two cases have introduced innovations at all levels of industrial relations that reinforce and help sustain each other. At Xerox, participation and problemsolving are used not only at the workplace as part of an ongoing QWL process, but to adapt work organization practices, to plan for how to use new technology, to explore opportunities for enhancing employment security, to design a gain-sharing system, and for union-management consultation over longer-term plans and business prospects. At Fiero, the principles of participation and flexibility have been integral parts of the overall design and day-to-day management of the facility from the start. Thus, because of the interdependence among these innovations, we believe these parties have gone farther toward a transformation of the overall system of industrial relations governing their relationships and have a higher probability of institutionalizing these innovations as ongoing industrial relations practices.

We only see a continuous commitment to grappling with these issues in a handful of cases. Instead, we mostly observe significant changes in a limited subset of activities. In some cases, such as Boeing, Budd, Goodyear, and Alcoa, the parties appear to be searching for strategies to continue the momentum established to date. They are broadening the scope of their innovations in ways needed to reinforce and sustain those already initiated. At Boise Cascade, the changes were introduced as a one-time event, incorporated into the labor contract, and have remained in place. At Cummins there has been a reversal of some of the initial changes as a result of conflict that occurred between management and the unions over recent layoffs, recent shifts in business strategy, and changes in top management personnel. Thus, a wide spectrum exists within our panel sites with respect to the degree to which these innovations have been institutionalized and their prospects for further transformation of traditional practices.

Strategies for Diffusion

A key conclusion that can be drawn from the cases reviewed above is that the institutionalization process involves incrementally overcoming or coping with the various internal contradictions that block innovation at all three levels of the labor-management relationship. Only a subset of the population of current bargaining relationships across the United States fits this description, however. Innovation is still concentrated in relationships where the parties have experienced sufficient economic pressures to adapt, and where management lacks viable alternatives to improving its competitive position without working with the union. Thus, we face a major constraint on the diffusion of these innovations to broader settings, viz., the fact that in the majority of employment relationships in the U.S., management attempts to avoid unionization or to limit the scope and influence of their unions.

We now turn to a discussion of the strategies of American management, union, and government leaders, to identify the factors that will help decide whether these innovations will diffuse, or whether they will remain limited to a relatively small subset of bargaining relationships.

Management Strategies and Choices

The diffusion of innovations in industrial relations will be vitally affected by the values that govern management policies and by the business and technology strategies management chooses to remain competitive.

Management Values. In unionized settings, innovation depends on management's acceptance of a role for unions at the workplace and in managerial decisionmaking. This is essential if management is to attain a shared commitment to improving the organization's competitiveness. Yet the opposition to unions and expanded union influence lies so deep within the value system of the majority of American managers that it has become a major barrier to the diffusion of industrial relations innovations.

Efforts to unionize new groups of employees will be highly contested adversarial processes. If the present trends continue, unions will lose a majority of these elections and probably become more frustrated with the current procedures. This will reinforce the insecurity and hostility

that has come to characterize the national labor-management climate in recent years. It will make it more difficult for those union leaders who promote innovations and cooperation at the workplace to win internal political battles over these innovations. In those cases where unions do win representation elections, adversarial recognition processes will become adversarial bargaining relationships that will not be conducive to the trust, flexibility, and participative union-management relations required for the institutionalization of innovations.

Thus, American management faces a clear strategic choice. It can continue to take advantage of its current power and influence, thereby maintaining its traditional opposition to union representation of its workforce. This will make innovation problematic with existing unions. In effect, those managers facing strong, stable unions suffer at the hands of their associates. Alternately, management can join union representatives so as to negotiate various forms of worker representation that suit the needs of firms, as well as the needs of unions and the employees/members.

We do not expect a significant shift in managerial values to take place. What we do wish to emphasize here is that collectively, American management has a stake in diffusing innovations. At a macro level, management has an interest in ensuring that actions by any individual management representatives at the level of a firm or a single plant do not chill the environment for innovation in other organizations.

National networks of executives, who have seen the benefits of sustained innovation and who have a significant economic stake in the continuity of these innovations, need to be encouraged along these lines. These executives need to play a visible and active leadership role in promoting discussions over the role of unions in society and the types of union-management relationships that are essential to the long-run competitiveness of American industry. They need to work to educate their peers on the costs of union avoidance to the overall national labor-management climate.

Business Strategies. Not all business strategies are equally compatible with creating and sustaining innovations in industrial relations. The stability provided by collective bargaining under the New Deal industrial relations model rested on the ability of unions to limit management's

incentives (or ability) to use labor costs as a major source of competitive advantage. Since collective bargaining is no longer able to “take wages out of competition” in many industries, managers must now compete in settings where labor costs vary. Yet, we believe that attempting to compete through low labor costs is, in the end, not a viable option for much of American industry. This path certainly limits the trust, flexibility, and adaptability of workers that are all needed to sustain the innovations discussed in this paper.

American management must recognize that in order to sustain and diffuse innovations over the long run, it will need to follow competitive strategies that meet the income and employment security expectations of the American workforce. Business and investment strategies that seek to move work in response to short-run variations in labor costs or employment standards are only the most visible of a variety of strategies that are incompatible with sustaining innovation. There will always be environments within or outside the U.S. that offer lower wages and employment standards. This business strategy will forever leave the American workers insecure, and therefore inflexible. Such a short-run strategy will also direct management’s attention away from the need to develop the comparative advantage American firms can sustain in the world market, viz., an advantage built on high technology, skilled labor, and flexible production.

Other business strategies that limit trust and flexibility also need to be challenged if innovations are to be diffused. The short-run buying and selling of productive assets as mere financial instruments applied irrespective of employment consequences, has the same chilling effect on trust and flexibility. Thus, corporate take-overs or other investment strategies that have short or limited time horizons have profound dysfunctional human resource and industrial relations consequences.

Technology Strategies. One of the central lessons American management is learning from NUMMI and other Japanese-managed firms in the U.S. concerns the technology strategies these companies are using. Our discussion of NUMMI relied heavily on Shimada’s and MacDuffie’s model of the production system in use in that plant and in many other Japanese manufacturing firms. The lesson, however, is generalizable to applications of new technology outside of manufactur-

ing as well. That is, technology strategies that rely on effective use of employee motivation, skill, and flexibility are more compatible with innovations in industrial relations than are those that try to embody all the controls and labor saving features within the hardware itself. These technologies also help to institutionalize the associated industrial relations innovations discussed here.

Strategies and Choices for Union Leaders

A companion paper from our research (McKersie, Cutcher-Gershenfeld, and Wever 1987) provides a detailed analysis of how the strategies and roles of union leaders at the local and national levels change in bargaining relationships that institutionalize these innovations. We therefore need only summarize the key roles of top-level union leaders in diffusing these innovations.

There are deep divisions of opinion within the leadership ranks of the labor movement over whether to support, oppose or remain neutral about many of the innovations discussed here. The American labor movement will very likely experience a prolonged period of internal political debate and conflict over these issues. Unless leaders of national unions and other top-level leaders in the labor movement adopt innovations of this kind as part of their basic strategies for organizing and representing workers, union leaders at lower levels who support these innovations will lose political battles within their unions. Consequently, the diffusion and institutionalization of these innovations will be blocked.

A leadership posture of neutrality or passive acceptance is not enough. This approach would only sustain uncertainty and prolong internal conflict. Moreover, it would leave employers wondering about how supportive future union leaders would be of such changes. Finally, simple passive acceptance would limit labor leaders' ability to shape and influence the course of innovations and would limit the ability of unions to use their support for these ideas in recruiting new union members.

Strategies for Government Officials

We believe that the broad diffusion of these innovations will require strong and sustained leadership on the part of national political leaders: first, to encourage a positive dialogue between labor and management,

and then, to adopt the principles embodied in these innovations as a conscious and explicit national policy. Such a national policy would require comprehensive review and updating of both the specific labor laws that govern union-management relations and the array of economic, trade, regulatory, and employment and training policies that influence employment relationship.

Some positive steps in this direction are already being taken at the national and state levels of government and within a variety of public and private groups that are studying ways to enhance the competitiveness of the American economy. For example, the Labor Department recently issued a discussion paper asking for further analysis of the fit between current labor law and the objective of promoting greater cooperation (Schlossberg and Fetter 1986). This coincides with a growing consensus within the academic community that serious flaws exist in the content and administration of the National Labor Relations Act that impede workers from exercising their rights in union organizing drives and discourage labor and management from adopting many of the innovations discussed in this report (Getman, Goldberg, and Herman 1976; Dickens 1983; Freeman and Medoff 1984; Weiler 1984; Cooke 1985; Kochan, Katz, and McKersie 1986; Morris 1987). This dialogue must continue and be translated into concrete proposals for updating labor law to fit the contemporary environment.

The efforts of the Labor Department's Bureau of Labor Management Relations and Cooperative Programs to promote research and disseminate information on innovations in industrial relations have also helped to bring the changes in industrial relations practices to a broad range of practitioners. The network established through the Labor Department's support of this research has served a diffusing role as the parties interacted and learned from each other's experiences. The development of more and larger networks such as these should continue to pay dividends for the Labor Department and the economy.

Updating labor policy will also require greater integration of labor-management relations with other dimensions of our national human resource and economic policies. In this paper, we have emphasized the importance of cooperation, flexibility in human resource management, compensation and employment security, and long-run business strategies

within individual firms. The same need exists for coordination and integration of public policies affecting these activities and outcomes. The 1987 report of the Secretary of Labor's Task Force on Economic Adjustment and Worker Dislocation is a good example of a tripartite effort to reach a consensus on a national policy for helping workers and firms adjust to economic and technological changes. The involvement of labor, business, and government representatives in the development of this policy not only helped to build a stronger link between public policy and private practice but it also served as a model for making progress on a controversial labor policy issue by involving the parties in intensive negotiations and consensus building.

There is also an opportunity to take advantage of the growing consensus among public officials, business and labor leaders, and academic experts on the need to develop a long-run strategy for improving the competitiveness of American firms in world markets and reducing our trade deficits. We believe that diffusing and institutionalizing the industrial relations innovations discussed here will be critical to the success of these efforts and should, therefore, be integrated into these strategy discussions.

We can make this final point by way of a historical analogy. Collective bargaining only diffused and became institutionalized as a stable institution in American society after the private experiments of unions and employers in the clothing, skilled trades, railroad, and other industries were adopted as the basic public policy of this country in the Railway Labor Act and the Wagner Act. The diffusion of collective bargaining was then bolstered with the support of the National Labor Relations Board and the War Labor Board. Macroeconomic policies that linked economic expansion and improved standards of living further assured the centrality of collective bargaining. Public policy will need to play a similar institutionalizing role if the innovative practices that management and labor have experimented with in selected private settings during the first half of the 1980s are to be sustained and diffused to broader settings in the years ahead.

NOTE

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Exhibit 1 Overview of Research Sites

	Workplace level	Collective bargaining level	Strategic level
GM-UAW (Fiero & Lake Orion plants—both MI)	Elements of the team system, less supervision, heightened emphasis on quality control, fewer inventories	Departures from past practice to allow greater flexibility in work design & wages, Lake Orion agreement allowing for employees to choose single or multiple classification pay and work organization	Joint discussion of new technology, human resource planning, and some aspects of investment at Fiero, formal top-level joint roles in Fiero
Xerox-ACTWU (Rochester, NY manufacturing complex)	Highly evolved employee involvement groups, some autonomous work groups, less supervision, statistical process control, areas of complete work redesign, just-in-time delivery, reduced inventories	No-layoff guarantee, language guaranteeing joint decisions on outsourcing, experimental gain-sharing program, problemsolving approach to bargaining, shift in pay to take some increases out of base wage, shelter agreements to allow for flexible work organization	Joint decisionmaking on subcontracting, horizon teams for long-term joint human resource planning, regular union access to CEO, joint plant design, joint new product development, new relations with subcontractors

Western-ALPA, IBT, ATE, AFA (Los Angeles main hub)	Limited employee involvement	Deep concessions in wages and work rules	Union seats on the board of directors, minority employee stock ownership
Boeing-IBT (Seattle, WA manufacturing complex)	Quality circle program	New technology language covering training, information sharing, and pilot programs and experiments	Joint union-management pilot technology programs and experiments
Budd-UAW (Detroit, MI and Kitchener, Ontario manufacturing plants)	Employee involvement groups, statistical process control, just-in-time delivery being established, Joint Die Transfer Committee	Substantial wage and benefit concessions, history of wild-cat strikes and other concerted activity	Establishment of joint, top-level steering committee
Cummins-DWU, OCU (Columbus, OH)	Work redesign, extensive employee involvement program, statistical process control	Some wage concessions, limited job security	Unanticipated corporate-wide layoff

Exhibit 1 (continued)

	Workplace level	Collective bargaining level	Strategic level
Alcoa-ABGWU (Lebanon, PA rolling mill)	Employee involvement and communications programs, selected areas with work redesign and autonomous work group, statistical process control	Substantial wage and benefit concessions, inability to depart from national agreement on gain sharing	
Boise Cascade-PWU (DeRidder, LA paper mill)	Sudden shift to highly flexible work organization with only four job classifications	Complete replacement of traditional contract with team-based system of work organization, lengthy strike prior to the change	
Goodyear-URW (Lincoln, NE manu- facturing plant)	Employee involvement and communications programs, statistical process control	Problemsolving negotiations process	

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