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NEW TECHNOLOGY, WORK ORGANIZATION AND INDUSTRIAL RELATIONS IN THE WEST-GERMAN CAR INDUSTRY

The nationally specific industrial relations (IR) setting has a great impact on the development and introduction of new technology and on the organization of work. This is the main hypothesis of the following essay. In developing the argument, I draw on findings from a research project carried out at the Science Center Berlin (WZB) as a part of the research program "The Future of the Automobile" coordinated by MIT. The focus of this project was on the "challenges and opportunities for the employees in the present restructuring of the world automobile industry", and the empirical research covered three multinational automobile corporations (made anonymous as Companies A, B, and C) and a selection of their car assembly plants in the United States, Great Britain and the Federal Republic of Germany. The plant names have also been made anonymous. Thus, as an example AD1 refers to one of the several assembly plants of Company A in the Federal Republic of Germany. The empirical research was carried out from 1983-1986¹.

In the following account I will not undertake a comprehensive description of the institutions and regulations of the system of industrial relations in the West German car industry. I will start, rather, by trying to capture the dynamic element, the process of change, and by looking more closely at some topics and lines of development from the 1970s onward. The focus is put on questions of new technology and new forms of work organization. I will illustrate the influence of the plant level IR-system on these two questions.

1 The project was carried out by Knuth Dohse, Ulrich Jürgens and Thomas Malsch. For the final report see: Jürgens et al., 1989; see also the proceedings of the final project conference: Dankbaar et al., 1988.

My account will concentrate on the West German situation, although I will occasionally draw contrasts with the situation in the British and American plants.

MILESTONES IN THE DEVELOPMENT OF THE INDUSTRIAL RELATIONS SETTING

The developments which have especially characterized the situation we found in the German companies are (1) the difficult situation after the first oil crisis, including the problem of personnel reduction; (2) the movement to protect workers against the effects of rationalization and to deal with technological and organizational restructuring at the beginning of the 1980s, accompanied by (3) the demand for the humanization of work.

(1) The collapse in production and employment in 1974/75 formed a deep break for the three "mass producers" among the German automobile companies. Employment as a whole at Volkswagen was reduced by a total of 26% in the period between 1974 and 1975, the number of production workers by 29%; the majority of the almost 33,000 workers were released within a period of several months².

Foreign employees functioned to a certain extent as a crisis buffer as these measures were carried out. In the case of Volkswagen, foreign workers were released in much higher proportions than were German workers (the percentage of foreign workers was reduced by 66% or 13,000 employees). Since then, the percentage of foreign workers employed has not been significantly restored³. Although the percentage was still high in certain production areas, it was clear that from now on measures of personnel reduction would increasingly affect the German core workforce. In regard to the design of work and new technology, another type of worker was required instead of the unskilled "Gastarbeiter" (foreign worker).

In spite of the enormous pressure to release personnel at Volkswagen and other companies, it was possible to achieve the reduction of personnel by means of so-called "bloodless" measures: voluntary pay-offs, early retire-

2 See also Streeck, 1984, p.56ff.; Dombois 1976.

3 Brumlop and Jürgens, 1986.

ments, not replacing "natural fluctuations", and a hiring freeze⁴. Thus, the reduction of personnel at VW could be carried out without actual dismissals.

It was a part of the crisis experience of 1974/75 that the rapid upswing which immediately followed in 1975 brought about renewed hirings while, at the same time severance pay programs were still being carried out. Workers who had left their plants with large pay-offs were already being hired again a few months later - to the great displeasure of their fellow workers who had remained in their jobs. For a while, work alternated between short time on the one hand and overtime accompanied by extra shifts on the other. This experience led to a demand for a longer term orientation of personnel policy and for a stabilization of personnel development⁵. The works council has great influence in the case of overtime and extra shifts due to the right to co-determination in this matter. Works councils and unions now began to check more thoroughly the medium-range effects on employment and capacity before allowing overtime.

In regard to the goal of employment stabilization, VW proclaimed the "personnel policy of the middle line" (1975). In order to isolate personnel developments from short range variations in demand, the production volume should no longer directly follow all peaks in demand by hiring employees who would become redundant as soon as the demand goes down again. Instead, the production volume should be aligned to the demand development in a medium-range perspective thus consciously skipping the high pick market opportunities and thereby stabilizing the personnel development. In the years that followed this personnel policy principle was, to the chagrin of many managers, often violated; experience has shown time and again that important resources are often tied up with breaking in and training at the workplace. The principle is practically meaningless today⁶.

The policy of employment security and of stabilizing the personnel situation in the plants has, nevertheless, strengthened expectations in a way similar to

4 Cf. Schultz-Wild, 1978; Dombois, 1982a; Streeck, 1984; Brumlop and Jürgens 1985.

5 See also Streeck, 1984, p.66ff.

6 See also Dombois, 1982b.

leading Japanese automobile companies with life-long employment security for their core work force.

(2) This guarantee of employment security had to face a serious test at the beginning of the 1980s in view of the German automobile manufacturers' big projects for technological and organizational restructuring. The most important experience resulting from these project was that the dismissals and downgrading measures which had been feared did not take place. The restructurings became, rather, an occasion for quite far-reaching agreements for securing the jobs of those threatened by rationalization. The following case gives an example:

In March of 1984 an agreement dealing with personnel measures in connection with the investment program for the years 1984-1988 was reached for the entire Company BD and thus also covered the changeover at BD1. This agreement contained the following points:

- Company necessitated dismissals were formally waived for the first time.
- Wage and salary safeguards were agreed to for older workers (50 years of age with 15 yrs. service, or 55 yrs. of age with 10 yrs. service) without a time limitation. (The average age of the workforce of BD1 was 41 years.)
- The wage safeguards for all others were extended and limited to four years.
- Downgraded employees received preference rights for taking over appropriate positions in the plant that became vacant.
- It was guaranteed that workers transferred into new departments would not be downgraded.
- Finally firm management promised that

the appropriate committees of the works council would continually be informed regarding the current stage of planning and would be instructed about effects on production technology, organization and personnel in a timely manner - that is, when one can still influence the planning and when the decisions have not been made (Works Constitution Act § 86 Sect.2).

Wage safeguards of this kind are practically nonexistent in the USA. In Great Britain, they were realized in the same company only after the German affiliate made the first steps⁷.

(3) The third characteristic topic and sequence of events in the German context is tied to the headings "humanization of work life" and "qualitative contract policy". The discussion in the Federal Republic followed the trend of countless international programs and projects as well as the establishment of corresponding organizations in other countries (such as the Work in America Institute, etc.)⁸.

Yet West Germany developed differently from countries like the USA, where such projects were initiated chiefly at the corporate level, or Sweden where the employers' associations played a central role. Here the development was primarily characterized by the governmental program for "the humanization of work life" and the fact that the unions, especially the IG Metall, along with the works councils in the factories, became active advocates of objectives of a more humane reorganization of work. A further characteristic is that in West Germany, of the two basic theoretical positions forming the basis for the international discussion of "new forms of work" - the socio-technological and the human relations⁹ approach - only the socio-technological approach became established. The consequence was that in contrast to the USA the discussion was oriented more toward job design than organizational design and as a result, more oriented toward technological solutions¹⁰. The strong link to technology exhibited by many approaches also mirrors the more pronounced engineering science

7 In addition there is a tacit understanding by both sides in West Germany that the wage safeguards are indefinitely valid, regardless of how the agreement reads: "This arrangement foresees wage security for a certain time. Up till now we have arranged things so that no loss of wages takes place... We also have no plans to discontinue this policy. The guarantees will be extended. ...there is a time limitation for younger workers, in principle, which has however not been held to and will not be held to. We will take care of that in another way." (personnel manager BD1)

8 Auer et al., 1983.

9 See also Strauss-Fehlberg, 1978; Schäuble, 1979.

10 The question of the degree of freedom for structuring work or, conversely, the extent to which work organization is determined by technology, was thus central for the theoretical discussion in the Federal Republic but hardly appeared in the US discussion.

character of the West German approaches and the greater involvement of engineers in corresponding considerations and projects.

The two central topics of the different "humanization of work life" programs and initiatives can be summed up under the headings of "stress and strain" and participation. Each of them has important implications for the introduction of new technology and new forms of work organization and shall be discussed in more detail.

DRIVING FORCES FOR NEW CONCEPTS OF WORK ORGANIZATION

The topic "stress and strain", and the corresponding measures for structuring technology and work according to ergonomic principles found the most rapid and comprehensive entry into the workplace. In fact, the reduction of strains and stress became a terrain of common interests between management and the works councils regarding the introduction of new technology. Measures for ergonomic improvement interfaced with demands for prevention of work related illnesses and the planning of new technology. A finding of our comparative study was that ergonomic considerations received by far the most attention in German companies, from management as well as the works council. Many members of works councils have taken courses in the meantime and have acquired the corresponding training in ergonomics. Ergonomic factors also play a very important role in the review of projects for technological change. According to co-determination legislation works councils have the right to intervene in management measures of technological and organizational change especially when the works council can refer to "proved findings of ergonomic science" as is stated in the law¹¹.

The emphasis on ergonomics and on technical measures to reduce work-related strains and stress correlates with a greater problem of illness-related absences and disability. The number of illness-related absences and the percentage of disabled workers is considerably higher in the factories of all three West German companies compared to the British and American plants (see Table 1).

11 § 90/91 Works Constitution Act.

Table 1: Illness and disability (1985)

	illness-necessitated absences*	disabled workers**
A US 2	4.8 %	5.9%
B US 2	3.5 %	1.6 %
A GB 1***	4.6 %	3.0 %
A D 1***	8.9 %	11.6 %
B D 1***	9.2 %	14.9 %
C D 1	8.3 %	14.9 %

* in percentage of the workforce as a whole

** in percentage of the workers

*** 1984

Demands for compensating occupational stress and strain and preventing work-related illnesses through reducing the intensity of work provided the justification for introducing personal relief time allowances and lengthening breaks in the 1970s¹². This issue also provided an important argument for the expansion of individual vacation rights in the 1970s and for the reduction of weekly working time in the 1980s. The objective of humanizing work thus contributed significantly to great variation between the countries studied in the temporal availability of the individual worker to be actually deployed in the production process.

One can see from the comparison in table 2 that the average "utilization time" per worker in the blue collar area in factory CD1 is 16% less than in the US factory compared. In this comparison, the time off granted for education or training was not included. The difference becomes more drastic if the availability for overtime is considered. In plant A US1, the

12 Sperling, 1983.

factory does pay a small "penalty" per hour of overtime worked into a training fund, as provided for in the general contract, but is not limited in setting overtime hours. In plant DC1 overtime is essentially made up for by additional free time on the basis of corresponding contractual agreements. When this is taken into account differences between the two factories in the temporal availability of the workers add up to between one fourth and one third of the yearly working time.

Of course, this situation caused problems for the efficient deployment of labor in West German plants. The temporal availability of the individual

Table 2: Differences in the temporal availability of the workers in a comparison between a German and an American assembly plant (1985)

	A US 1	CD 1
paid breaks per shift	48 min.	64 min.
regular weekly working time	40 h.	38.5 h.
holidays which do not fall on Saturday or Sunday*	13 days	10 days
contractual vacation days	20 days**	30 days
illness-necessitated absences	6 days	18 days***
available working hours per year****	1,590 h.	1,340 h.

* number for 1984

** with an average seniority of 15 years; the vacation entitlements vary between 2 weeks for 1 to 3 years of seniority and 5 weeks for 20 years seniority and more.

*** average for the entire factory including salaried employees

**** calculations proceed from a theoretical maximum number of 260 weekdays per year

Source: Own surveys and estimates; VDA-Pressedienst Nr.20a from December 20, 1984.

worker will be further reduced in the course of the shortening of the working week. The standard working week in the West German auto industry is 37 hours now and it seems certain that the IG Metall will achieve its goal of a 35 hours week in the early 1990s.

To cope with this situation new technological and organizational concepts are being discussed. They focus

- a) on further automation in order to ultimately achieve "manless" production and
- b) to increase the utilization time of the plant facilities at the same time as the standard working time of the employees decreases. New shift patterns like 4 times 8 hours per employee (36 hours per week) including the saturday as regular working day thus increases plant utilization to 96 hours in two shifts (80 hours had become the norm in most western companies in the 1970s).

The argument for reducing work stress and strain also played an important role in regard to the topic "worker participation", which had been discussed in West Germany under the heading co-determination at the workplace since the 1960s¹³. For the trade-unions, however, the question of expanded "participation" in the past was primarily a program for extending co-determination rights to other issues and areas of company affairs¹⁴. In the framework of the humanization projects since the middle of the 1980s, the interest on "participation" has expanded above all to include questions of training and skill.

Forms of group work were tried out in company projects in which employees could plan their work tasks independently and take part in organizing the work process and the working conditions in the factory¹⁵. In the 1970s there were projects with semi-autonomous groups in all of the automobile companies. In general, they had already been discontinued by the beginning of the 1980s and chalked up as failures - admittedly with differing reasons from the management and worker points of view¹⁶. The

13 Fricke et al., 1982.

14 Hoffmann, 1968.

15 Friedrich-Ebert-Stiftung, 1981; Fricke, Notz and Schuchardt, 1982.

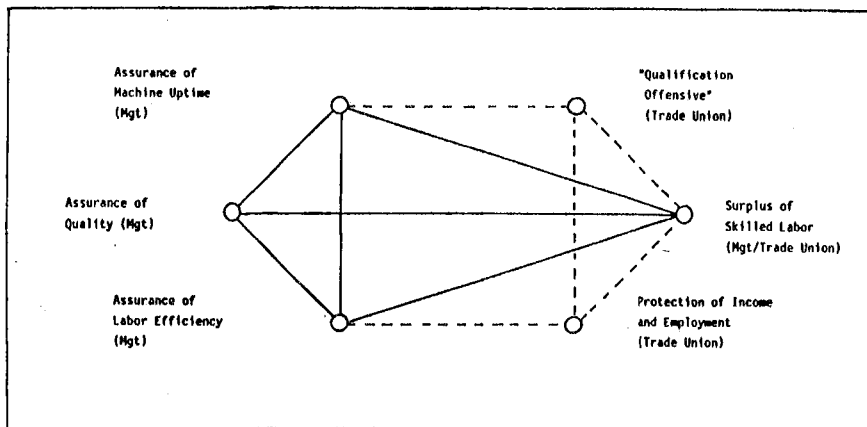
16 Altmann et al., 1981.

project at the VW engine plant in Salzgitter, in particular, received a great deal of attention. A concept of semi-autonomous groups was developed jointly by the participants and external social scientists, a concept aimed at creating improved workplaces and supporting the workers' development by widening their field of competence and increasing their skills. It was above all on the basis of this experience that the union argued that group work undermines existing forms of interest representation in the plant (works council and union stewards) at the same time as management came to view groups as uneconomical for the conditions of mass production.

But the attitudes have been changing on both sides since the mid-1980s. "Learning from Japan", increased pressure from world market competition and the development in process technology have contributed to this change in attitudes. But these are not the only explanatory factors. "Group work" has become a terrain of common interest for the design of work organization as ergonomics had been for work place design.

Team-based work structures are still in a very early phase of development in German auto firms. So far (1989), there is only one company which has firmly committed itself to the team concept and by now has one third of its

Figure 1: Functional Necessities and Motives to Reorganize the Division of Labor in Production



hourly work force organized in production teams or production groups. But other companies are catching up. All companies now seem to give production teams a central role in their plans for the future.

Of course, there are differences in the assessment of advantages and disadvantages and of the functional necessities concerning group work from the perspectives of management and the union. Figure 1 shows the main "points of reference" used by the proponents of group work in the current discussion.

For a more systematic approach to the various group- or team-based forms of work organization which can be found in practice it is necessary to deal more specifically with the various "points of reference". Each point of reference is related to specific interests or motives to reorganize the division of labor from the point of view of management and of the trade union.

In the following I want to discuss each of these "points of reference" briefly:

(a) Assurance of machine uptime:

As a consequence of the enormous investments of the car companies in process technology, questions of manning, labor productivity and wage costs have become secondary considerations in the areas that are highly mechanized. For example, due to mechanization and automation in the body shop of one German assembly plant which was restructured recently, the hourly personnel working here was reduced from 200 to 25 per shift. They are working side by side with about 150 industrial robots, grouped together in a number of highly complex automated assembly cells. By far the main point of concern of management is to keep these complexes running and avoid machine downtime. The size of the facility makes it necessary that everyone working in the surrounding area be responsible for monitoring the machines in order to prevent downtime or, if a breakdown happens, to fix the problem quickly. In such areas, the differentiation between the direct productive personnel and indirect productive personnel such as quality assurance, maintenance and logistics has become obsolete. Removed from the direct production flow, everyone in this area is serving the machine functions. Attention and preparedness to act quickly if

necessary are by far more important than making sure that everybody has a full work load at any time.

(b) Direct labor efficiency is still a point of reference for the reorganization of work. However, this holds true only for the still manually dominated areas of production. Here, problems of manning, of assuring a full work load for each worker at all times, i.e. to assure efficient line balancing is a growing concern. The main cause lies in the present market strategy followed by most of the auto companies. The attempt to cover the broadest possible range of customer preferences by offering a broad range of products, has led to an explosion of the variations of models and options offered by companies in recent years. According to the statements of management representatives, this model and option complexity is even greater in Western companies than in Japanese auto companies.

The problems of model and option mix are especially exacerbated in the areas of trim and final assembly. The variation of work content from work unit to work unit may be 30% and more. The manning level required to cope with high option models will thus be "underutilized" whenever low option models come along. So far, even the most advanced computerized systems cannot make sure that the pre-planned sequence of work units in the actual production flow can be maintained. Thus, pre-planned line balancing to assure a stable work load and labor allocation remains futile.

The higher manning level required to cope with model mix problems in the area of trim and final assemblies is still an important cost factor. Around 40% of the hourly wage cost to produce a car stem from the assembly areas. Thus, there is a lot of pressure to cope with these costs and reorganizing work to assure more flexibility of labor is a contribution to this end.

(c) Improving product quality is a third point of reference for reorganizing work. One of the most important consequences of the "learning from Japan"-movement within Western management at the beginning of the 1980s has been the fundamental change in the approach to quality problems resulting from production. It has been understood that there is a relationship between the degradation of direct labor and the amount of quality inspection and repair work necessary in production. The reduction of quality inspection as a separate indirect job category and its transfer back into direct production has been the starting point in many cases for the

introduction of production groups or -teams which selfregulate quality assurance in their area (*Qualitätsregelkreise* etc.).

(d) With unemployment rates in some segments of the labor market as high as 20%, there is a surplus of highly qualified tradesmen and companies have recruited them for unskilled or semi-skilled jobs. In addition, the company-internal apprenticeship programs have been expanded to allow a greater intake of new apprentices for labor market policy reasons resulting especially from union demands. The graduates of these apprenticeship programs (a three to three and a half year state-controlled qualification program which is the prerequisite for the formal status of a "skilled worker" in the German system of vocational qualification) can no longer be absorbed by company skilled trades departments (maintenance etc.). Therefore, they, too, are now often first assigned to production jobs in German auto plants. The resulting redundancy of skilled labor is an incentive for management to reorganize work. It makes possible the recruitment of skilled workers for jobs in direct production and - as the German system of wage differentiation is based on the actual job demands and not on the qualification of the worker - to pay these workers accordingly. The surplus of skilled workers on the labor market has thus effected a devaluation of the costs of skilled labor and the German companies have been profiting from this effect. The rates of skilled workers with certified mechanical or electrical/electronic occupations employed "under value" in direct production ranges between 30 to 50% in auto plants situated in economically depressed regions. There are other plants though, situated in urban regions which have rates of skilled workers employed in direct production of around 10% only.

The assignment of skilled workers to semi-skilled jobs in German production plants is an important prerequisite to allow for new forms of work organization transferring skilled workers' functions to direct production workers. At the same time the lower status employment of skilled workers creates pressure to structure work in a way that suits skilled workers' aspirations and demands for satisfying and qualifying work. Management must foresee that as soon as the labor market pressure is reduced many of those well-qualified or skilled workers in production might quit to look for other jobs outside the company. Generally, there is no discrimination against mid-entries in German firms.

Regarding the regional distribution of plants with more or less commitment to the concept of production teams the surplus of skilled trades on the regional labor market seems to be one of the main explanations.

There are two "points of reference" supporting work reorganization which can be discerned from trade union policy and the institutionalized employees' interest representation (*Betriebsrat*) in German plants: the demand for qualification and further-qualification and the demand for income and employment protection in case of technical and organizational restructuring. As mentioned before wages are determined according to the actual tasks or jobs performed. A broader range of tasks performed within a team or a group protects the employment of an individual worker in case "his job" is eliminated due to technical or organizational changes. Thus labor union representatives regard group or team work with job rotation and correspondingly higher qualifications for each group member as protection against job downgrading and job loss. Thus, team or group work has become an arena of work organization measures in which management, trade union and works councils find common terrain. Of course, the trade union and the works council would prefer the introduction of work groups which would upgrade the lower-ranking workers to the level of the highest qualification and wage level in the team. Management would prefer production teams with shared responsibilities but specialized work tasks and differentiated wages.

A particular concern for the union in this respect is the question of "residual work". This term relates to the new unqualified work functions like parts-loading, simple machine tending and pick-and-place work which constitutes a large share of the jobs remaining after automation. These work functions are often regarded as evidence of a polarization of qualifications resulting from "technical progress". The occupational structure before restructuring of the plants was dominated by semi-skilled production jobs, such as in the body shops of auto plants, welding, soldering etc. After the restructuring the amount of control tasks, such as machine monitoring etc. increased (from below 5% to more than 30% in the case of two German assembly plants which were restructured recently), and at the same time, the amount of residual work functions increased from nearly 0 to 40% and more of the new jobs. These new unqualified work functions

should be seen as temporary, as mechanization gaps which will be filled probably by future mechanization measures.

Now, an important issue for job design from the perspective of the union is whether the "residual functions" of the new work set-up are integrated with the more qualified tasks or whether they should be left bundled together and done by "residual workers" with low income and low job security. Job rotation that incorporates residual jobs thus constitutes a means of protecting employment.

INTRODUCING NEW TECHNOLOGY AND REORGANIZING WORK UNDER THE SYSTEM OF LEGALLY STIPULATED WORKS COUNCIL INVOLVEMENT

We found strong, functioning unions representing worker interests in all of the factories studied. With all of the differences in structures of union organization in the USA, Great Britain and West Germany, there are nonetheless great similarities in the factory institutions for representation of worker interests. In all factories there is a central body for worker interest representation (shop committee/joint committee/works council) whose members are elected by the work force and in which the factory unions are represented; and this body makes collective bargaining with the factory management possible.

In West German factories, the Works Constitution Act forms a basis which gives the works council - depending on its jurisdiction - legal rights to information, cooperation, and co-determination. Measures in the factory generally go through an ordered process of negotiation with the institutions for representing workers' interest in the factory which - in view of the legal co-determination rights and the ban of strikes as a means of carrying out factory conflicts - are under significant pressure to reach an agreement. This system of interest regulation in the factory has contributed to the fact that forms of informal self-regulation on the shop floor, such as we found them in American and British factories, have achieved no great importance in West Germany. The basis of this system is thus also a specific conception of law and the role of the law in disputes within the company. Simple customary rights or the making of precedents are not enough in the German context. The basis upon which a procedure is considered "normal"

has to be a formal and written one, which allows orderly processes in the case of a strike. Cases of arbitration, with procedures regulated by the law, are frequently stipulated for, or the case is heard by industrial tribunals¹⁷. It would, however, be incorrect to assume from this that disputes in the factory are generally settled by external authorities because of such legal regulation. An internal factory agreement in the course of negotiations between the two sides is much more common. The inclusion of external authorities for regulating cases of disputes within the company has never occurred in some factories. In only one factory have several such procedures been handled "outside" in the past.

As in the factories studied in other countries, negotiation agreements and minor agreements between lower level managers and union representatives also take place on the "shop floor" in the German companies. Characteristic differences exist, however, in the orientation of their actions: In the USA, traditionally, it is the central position of the seniority principle which cannot be violated by such agreements; in Great Britain it is the principle of customary rights and precedents; and in West Germany it is the reference to legally-binding factory agreements. The negotiation of factory agreements is thus at the center of interest representation in the factory. Particular interest positions must therefore seek formulations capable of being generalized, and must accept a process in which interests are balanced by central negotiations in the factory. "Restrictive practices", for example, which are not covered by such specifically negotiated arrangements are thus not protected by the works council.

A tradition of demarcation lines other than those set by management does not exist in West German factories¹⁸. The rules and demands oriented toward "protection" are, in the German context, not so much aimed at selection effects of personnel measures as in the case of the USA. In the case of dismissing personnel, the works council is required by law to ensure that the selection is made according to socially oriented considerations (such as age, number of children, family and financial situation), but the criteria are not weighted. Above and beyond this, works council policy is aimed at avoiding the necessity of such a selection through measures for

17 See also Dombois, 1982a.

18 See also Bosch and Lichte, 1982.

securing income levels as well as the overall employment level¹⁹. Added to this in the German context are wage systems which, in comparison to other countries also allow more flexibility for differentiating wages according to the work requirements. They also offer the works council opportunities to change the classification of individual jobs, thereby increasing workforce acceptance of reorganization through a more favorable classification of new job descriptions.

The wage contract negotiations in the American and British companies aim at defining wage rates for job categories which were previously established or contractually agreed to. For the individual employee, his or her wage is determined by the job classification into which he or she is hired or transferred. A wage increase can only be achieved through mobility between the job classifications. In contrast to this, the German contract negotiations determine a structure of wage levels which are agreed to in the regional master agreements. These contract agreements establish the number of and intervals between the wage levels. The wage contracts are traditionally limited to agreements on the rate of increase for "the skilled worker basic wage", i.e. the entry level wage for skilled workers. The assignment of individual jobs to wage levels is not predetermined, but is decided in bargaining at the factory level. On the basis of the master agreements and because of the legal rights of the works council to co-determination, there is considerable leeway for the negotiations at the factory level. The negotiations between the works council and management are carried out in the factory wage commission. Reference to the assigned wage level of similar jobs as well as reference to assigned wage levels of jobs at other plants of the same company do play an important role. But they only form the starting point for plant-level negotiations.

In the West German wage system there are in principle no insurmountable status thresholds. Semi-skilled workers may be assigned to the entry wage level for skilled workers or higher. The works council seeks to bring as many workers as possible into the higher wage levels. Thus the works council of plant BDI attempted in 1979 to change the assignment of all spot-welders from wage level 6.2 to wage level 7.2 (the basic wage for skilled workers). This attempt ended in a compromise with the result that 20% of the spot-

19 See also Dombois, 1976; Schulz-Wild, 1978.

welders were assigned to the higher level - with the prerequisite that they master at least seven different spot-welding operations.

This example is also characteristic of practices in the other German companies. It shows that there are actually no job classifications in the American sense, but rather pragmatic clusterings of jobs derived through decentralized negotiation between management and the works council based partially on analytic wage criteria and determined according to considerations of uniformity of wages between the plants. But there is still considerable leeway for bringing in other aspects into the bargaining process.

Finally, because the assignment of jobs to wage levels is specific to each workplace and not to the job category, the possibility arises for wage increases by means of "job design" in each case of production reorganization. This takes place through the reallocation of work tasks according to demands and degree of difficulty. Conversely, there are no wage incentives in the US or British context for the consideration of job design by the unions or those affected. The motivation of the works councils in Germany to raise the pay level of a job is tied to changes in the demands and difficulty of the job; changing allocation of work tasks in the sense of new concepts of labor deployment are thus in line with the traditional wage-related interests as long as they lead to higher paid wage level assignments.

Through the concentration on job design, membership in job classifications within the realm of direct production jobs such as spot-welders, assemblers, and material transporters is secondary and from the point of view of workers, unimportant. We found only few cases where there was conflict due to the redesign of jobs and where on the basis of occupational interests workers protested against the loss of certain work tasks. Because the employees in semi-skilled jobs hardly identify themselves with their job classification their interest but also their fears in view of technological and organizational changes are directed above all at protecting their level of income.

Trespassing the border lines between jobs which are governed by different wage principles, i.e. direct production jobs and indirect production jobs like quality inspection and maintenance would not be so easy. According to the

works constitution act and the various regional wage master agreements the works council has full co-determination rights in all matters concerning the principles of incentive wage determination. It has almost no codetermination right regarding wage determination in the indirect job areas which are paid by straight hourly wages. Thus, the works council keeps a close eye on this border line. But it is more inclined to approve the transfer of job elements from indirect to direct production, i.e. from the straight hourly wage area to the incentive wage area because here it has greater influence. In contrast, the works council would in general resist the transfer of job elements from the incentive wage area into the straight hourly wage area because in this case it would lose its influence on the methods of regulating performance regarding this specific job element. But this interest meets with the new concepts of work management has been developing which state the need to bring back competence and responsibilities into the production organization which had been separately organized as staff functions so far. Thus, management too prefers the transfer direction from indirect to direct work and thereby "enriching" the job content here. Of course, the works council has to take into account reservation and resistance against such organizational reallocation of jobs on the side of the skilled workers and integrating skilled workers into production teams is an controversial issue. Management pushes into that direction because then skilled workers could during waiting time perform some "pick and place" work too. But as experience shows the works council would not be against an integration of skilled workers into unskilled production teams if the wage question could be settled satisfactorily.

As more and more of the specialized tayloristic job classifications became obsolete due to the introduction of new technology the concern of workers and the union for wage and employment security has led to a growing interest in the new forms of work organization based on group principles. Multi-skilled workers would not automatically become redundant if a certain job specialization became obsolete. Also, the formation of work groups, with differing jobs between which group members rotate, offers the possibility for demanding that a group wage level be raised to that of the highest wage level job within the group. This necessitates the acceptance of (previously unpopular) job rotation. Thus it has been co-determination rights of works council involvement in work organization which have furthe-

red the movement towards work integration and the introduction of production groups in West Germany.

SUMMARY AND CONCLUSIONS

As we have seen, the traditional orientations of union policy in the factory have changed considerably in the 1980s. In figure 2 we have distinguished four types of union policy and demands regarding new technology and the organization of work.

The diagram shows that the emphasis of the demands of the British unions in the 1980s are still oriented toward the traditional areas of protection and compensation. As opposed to this, the union policies in the USA and in West Germany have developed further towards reorganization concerns: in the spirit of an increased "participation orientation" of the UAW and a "prevention orientation" of the IG Metall. The most significant change in factory-level industrial relations is found in the American case. The changes introduced there have been a matter for the staffs and top representatives from the companies and the unions. The impulses and concepts which have arisen at the factory level out of the traditional regulatory forms and practices, and in this sense have come "from below", have been minimal. Nevertheless the changes which were introduced from the top have also taken root at the factory level in the meantime and have changed factory-level industrial relations. The unions in the factory have largely abstained from developing their own ideas in the framework of the jointly supported "participation oriented" programs. As a result factory-level union policy is rather indifferent or sometimes opposed to joint union-management programs.

In the British context, industrial relations practices at the factory level do not hinder conventional measures of rationalization but have not been conducive to the introduction of new concepts of work organization and participation. The unions generally find themselves being in a purely defensive role in regard to the measures. The loss of employment and the competition between the "sister plants" on the continent undercut bargaining power on the shop floor and increased the pressure for changing

factory-level industrial relations. This pressure for change has not meant busting the union, but did involve weakening shop floor militancy.

Figure 2: Types of union policy orientation at factory level

traditional emphases for demands	new emphases for demands
<p>"protection oriented"</p> <ul style="list-style-type: none"> * no work intensification * no discrimination in the selection of personnel * employment security * securing the wage level 	<p>"prevention oriented"</p> <ul style="list-style-type: none"> * personnel planning * structuring technology and work (ergonomy) * breaks for resting * new training, reduction of working time
<p>"compensation oriented"</p> <ul style="list-style-type: none"> * wage increase (quality circle, etc.) * wage bonuses (e.g. for stress) * social benefits (e.g. early retirements) 	<p>"participation oriented"</p> <ul style="list-style-type: none"> * participation in problem solving * participation in regulating manpower usage * participation in decision decision making

In West Germany the introduction of new technology and work organization has not caused pressure for changing factory-level industrial relations as it has in the U.S. and Great Britain. Organizational changes and job design are negotiated centrally and decentrally, brought up by the company as well as the union. This corresponds to an orientation of union policy, which, in the course of the 1970s, developed its demands increasingly oriented toward "prevention". The statutory rights of the works council to information and participation have led to the practice of cooperative problem-solving patterns at the factory level in West Germany. At the same time the works council members and union representatives were able to develop their own concepts and alternatives for designing the forms of labor deployment, not least because of the institutions of co-determination. We did not find such an independent profile of union policy at the level of job design in either of the other countries studied. It was possible on this basis to negotiate future oriented arrangements between management and works councils which form a "strategic reserve" for future adaption require-

ments. With this, the institutions for labor market policy and vocational training have had the function of a productivity resource for the restructuring process of the 1980s.

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