

# The End of New Production Concepts? Rationalization and Labour Policy in the German Auto Industry

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In the German auto industry, group-based new production concepts started to become a strategic factor in the reorganization of work in the mid-1980s. This new strategy relied on an ongoing competition between the companies in the labour market and increasing competition in the product market. Since the crisis of 1992/3 the economic situation has changed dramatically. High unemployment combined with increasing competition in the global product market had led to a new change in work policy, which is criticized by many researchers and works councils as a roll-back to Taylorism. Indeed, most of the companies reinvent the classical assembly line with standardized, short work cycles. But in contradiction to the Tayloristic work organization, the assembly workers are enabled to participate in the process of reorganization of work by doing their own time and motion studies. An important element of new production concepts, namely the participation of workers, is even intensified. Nevertheless, the German car manufacturers are step by step adopting the Toyota production system, and therefore withdraw from new production concepts in order to develop their own version of lean production.

## **New Production Concepts Gaining Ground**

‘Good Prospects for New Production Concepts’ (Kern and Schumann, 1984) – in the mid-1980s in Germany this message triggered a lively discussion on the (re)professionalization of industrial labour, which went far beyond the usual self-referential academic discourse in industrial sociology and also affected practitioners in companies and associations. The pros and cons of the thesis of new production concepts were discussed at great length during the 1980s (see Dank-

baar et al., 1988; Malsch and Seltz, 1987). The debate was rendered especially explosive by the empirically proven diagnosis of a break in the overall trend in the development of industrial labour, where since the end of the 1960s it was assumed that, in particular in the commodities industry, such as the automotive or electrical engineering industry, the vast majority of industrial workers would definitely be faced with a high degree of division of labour, dequalification and heteronomy. Highly heteronomous, repetitive sequenced work seemed to be the fate of modern industrial workers, unless they were fortunate enough to take over indirect functions within commodities production (e.g. maintenance or quality control) or else find a job in an industrial sector such as mechanical engineering, where complex products are produced individually or in small batch production on a more or less craft basis (see Bergmann et al., 1986).

There was nothing new to the statement that, after a long (interim) phase of Taylorization of work, industrial change would inevitably lead to its (re)professionalization. Indeed, Kern and Schumann took up argumentation patterns which numerous experts had already presented in the lengthy debate on the future of work, such as the argument of the complexity of production techniques which requires a high level of qualification of automation workers, or the argument of the decreasing standardizability of work processes due to an increase in product variety (see Bright, 1958; Touraine, 1955). It was not the trend statement that was new, but rather the fact that particularly in the automotive industry new forms of labour were being tested in various places which included the reintegration of qualified indirect activities in the range of tasks of direct production workers (see Springer, 1990).

It thus seemed that an important pillar of Taylorist division of labour in one of the core branches of German industry had begun to sway. The impulse, however, did not come from outside, for instance from state programmes to humanize work, but from within. This of course gave rise to the assumption that the change of trend had to be taken extremely seriously, since it was obviously caused by the interests of capital utilization which of course determine the trend. State programmes for redesigning work did not prove successful, as was stated by Braczyk (1992) among others.

Historic experience, however, has shown, that 'Comrade Trend' is an extremely unreliable, rather volatile candidate, on whom it is hardly recommendable to rely. This becomes obvious when recalling

how many different, even contradictory statements about the future of work have been made during the century, some of them even at the same time. Generally speaking, most of the prognoses made with more or less great theoretical and empirical efforts did not come true; neither the comprehensive Taylorization of all physical and intellectual work (see, for example, Braverman, 1977), nor its comprehensive professionalization (see, for example, Diebold, 1952). As a result, in the 1980s, too, experts rightly warned against an overoptimistic interpretation of the change of industrial work and pointed out that the interests of capital utilization alone are no guarantee for a lasting end of the division of labour (see Altmann et al., 1982).

In order to stabilize a trend in industrial organization its promoters should not rely on the trend alone. Instead, they must support it in corporate terms and try and seek to influence corporate job design while at the same time making sure that it is included in the companies' strategic range of action. Since the early 1990s, this has been achieved in several automotive enterprises in Germany by initiating and implementing plant agreements aimed at a reversal of the existing Taylorist division of labour and at enlarging the workers' scope for action and decision-making. This was possible because even in the late 1980s and early 1990s management did not conceive of any way of tackling cost and productivity problems other than by giving up part of the existing division and heteronomy of labour (see Schumann et al., 1994: 341; Springer, 1993).

In such a situation it was an obvious solution for the management of automotive companies to reach an agreement on rationalization with the works councils which allowed comprehensive changes in industrial organization, dispensing with tasks or reallocating them, enhancing overall performance and mobilizing the workers' motivation and performance potential by assigning to them more interesting tasks with more responsibility. This also applied to economic optimization of work processes, which was likewise assigned to the workers in the form of job enrichment. It initiated not only a departure from repetitive sequenced work but at the same time questioned the rationalization monopoly of the rationalization experts, above all those from the field of industrial engineering. Works councils perceived the development as an opportunity for designing qualified work, for more independence on the job and, last but not least, for better pay, if direct production activities were to be supplemented by indirect activities. In turn they tacitly accepted an increasing

utilization of direct workers which implied redundancies in the indirect area.

Until the mid-1990s the impression arose at least in some automotive companies that the existing mainstream of heteronomous rationalization and Taylorist division of labour had more or less come to a standstill and new production concepts were gaining ground not only in theory but also in industrial practice. This was derived above all from group work which had been spreading since the late 1980s, strongly following the concept of semi-autonomy and job enrichment which had been developed in the 1970s and 1980s in Sweden and Germany to overcome repetitive sequenced work (see Antoni, 1994; Zink, 1995). Statistical research (see Schumann et. al., 1994: 341; Antoni, 1995: 26) has repeatedly suggested that care be taken with statements about a break in the overall trend affecting the majority of jobs in the automotive industry and above all in labour-intensive car assembly; there were no doubts, however, that on a conceptual level the existing Taylorist mainstream had been overcome. Internal reports of automotive companies and specialist publications were dominated by statements that clearly pointed towards semi-autonomy and job enrichment, some of them even towards abandonment or at least reduction of assembly line production (see Gesamtmetall, 1992; AKNA, 1990).

### **New Production Concepts under Pressure to Adjust**

For some time now there have been increasing signs in the automotive industry that non-participative rationalization trends are becoming ever more important in Germany (see Sperling, 1997: 26). A re-Taylorization of work is feared and criticized (see Roth, 1996a; Schumann, 1997a), which would abruptly stop the advance of new production concepts and threaten the rationalization consensus between capital and labour (see Bahn Müller, 1996). Re-Taylorization here stands for two things: on the one hand, a reversal of planning, design and optimization competencies of industrial organization to rationalization experts inside and outside the company (e.g. industrial engineering, consultants) and, on the other hand, a forced standardization of processes, above all in labour-intensive car assembly, where companies fully return to the flow principle and short job cycle times (fewer than five minutes).

The imminent 'rolling-back' (Jürgens, 1997a) is attributed to further spurts of internationalization (globalization), which presently do not only affect the automotive industry. It is here that the 'shareholder value economy' (Schumann, 1997b) comes in, which leads companies to focus much more on financial key targets such as cash flow, return on investment (ROI) or operating profit, while during the 1980s companies still more or less strongly favoured 'integrated management' (Bleicher, 1992) which emphasized not only 'shareholder interests' but also 'stakeholder interests'. Some observers even tend to perceive this as fundamentally rejecting the social market economy and turning towards unlimited capitalism and top-down class struggle, something which would sooner or later be opposed by workers' protest (see Bergmann et al., 1998). Fifteen years after the heralded end of the division of labour, are we now faced with the end of the new production concepts? To answer this question we must look at the underlying reasons for the rationalization of industrial organization.

Corporate rationalization and workforce planning concepts can be determined by problems either on the labour market, such as scarce human resources, or on the product market, such as the saturation of commodity markets. This utterly important fact, which has mostly been neglected – possibly even repressed – by German industrial and organizational sociology, was raised by Adler and Cole (1993: 86) when distinguishing between labour-market driven and product-market driven organizational approaches. Following this distinction, Volvo's industrial organization concept in Uddevalla could be classified as a labour-market driven concept, whose main focus was initially laid on making workplaces so attractive that the company was competitive on the labour market (see Berggren, 1991: 87). The same applies to all earlier concepts, already tried in the 1970s and 1980s in Sweden or Germany, aiming at a humanization of work via vocational professionalization.

Companies not only make and sell goods, they also purchase goods. The scarcer the supplier markets are, the more difficult it becomes for companies to maintain their hold on the product markets. What is more, supplier markets are to a very large extent beyond their direct sphere of influence, which in turn further intensifies the problem. Companies may, after all, become dependent on important supplier markets and the commodities offered there, something which of course also applies to labour as a commodity.

In situations such as this, companies must do their utmost in order to be supplied with enough of the required commodities at the right quality. In the case of labour it means treating it with care, paying high wages, offering good social security benefits, attractive work conditions and so forth.

In a reverse situation, where supply on the supplier markets far exceeds demand, commodities must be sold at decreasing prices with increasing demands on quality. In the case of labour this means that pressure increases on wages and social security benefits while expectations regarding performance rise. On all supplier markets cartels and others measures are employed to challenge market forces – as a rule, however, with limited success. For the commodity labour the limitations consist of unionization of workers, laws, collective bargaining and plant agreements, all intended to prevent the labour factor from being unprotected and harshly exposed to the rule of the labour market.

Corporate rationalization activities, as far as the labour factor is concerned, are directly influenced by the balance of power between competition of product markets and labour markets. Depending on the markets from which they are under particular pressure, companies decide on different rationalization strategies and concepts. There are basically four different directions of work organization (see Figure 1).

The figure shows that, depending on the relevant conditions in product or labour markets, companies have to focus on different aspects when rationalizing the labour factor. It becomes obvious that rationalizing the labour factor cannot always be equalled with an increase in economic efficiency, but that under certain conditions it might be rational for companies to focus their activities on improving working conditions or to lay as much emphasis on improving them as on increasing overall efficiency. If, however, an excess of supply of labour coincides with fierce competition on the product market, companies will inevitably prioritize economic efficiency increase over any measures to increase the attractiveness of work.

It is against this background that the present discussion on new production concepts in the automobile industry can be seen in a clear light. In view of the existing conditions on the product and labour markets, companies have, at the latest since the 1992/3 crisis, undoubtedly opted for the priority of efficiency increases. Companies are not forced to make production work more attractive

**FIGURE 1**  
**Thrusts of Work Organization**

<b>Product market competition</b>	<b>Strong</b>	Equal importance of efficiency increases and humanization (late 1980s and early 1990s)	Priority of efficiency increases (1990s)
	<b>Weak</b>	Priority of humanization (1970s and early 1980s)	Priority of quota fulfilment with a strong monopoly position (special case)
		<b>Strong</b>	<b>Weak</b>
		<b>Labour market competition</b>	

because European labour markets offer an excess of labour for simple tasks, and by relocating their plants in the course of globalization companies have access to even more labour reserves. Corporate rationalization activities are thus determined neither by a humanization of labour nor by the aim to balance economic efficiency increases with a humanization of labour. Rather they are determined by the question of whether the permanent economic efficiency and productivity increase, driven by ever fiercer competition on the product market, is to follow participative or non-participative paths and where the paths differ in terms of industrial organization. This trend is pushed or rather outshined by ever fiercer competition on capital and financial markets which increasingly forces automobile companies, too, to protect themselves from hostile takeovers and to increase the shareholder value.

Accordingly, auto companies in Germany are once again being faced with the challenge of a 'change in direction' (Kern and Schumann, 1998) in rationalization of industrial organization, particularly in their labour-intensive and, accordingly, labour-cost

intensive automobile assembly plants. More than ever the question now is how to raise productivity and maintain it at a competitive level (see Springer, 1998a). It is the prolongation of job cycles, which has been pushed since the early 1980s by some companies (above all Daimler-Benz and BMW), and the renunciation of standardized processes in favour of an individual degree of freedom in the design of work that have come under pressure. Both elements stand for improved working conditions according to the overall aim of balancing efficiency increases with the humanization of labour, something to which most managements together with works councils committed themselves in the early 1990s. This aim of labour policy, however, no longer corresponds to either prevailing conditions or the predominant thrust of rationalization. It thus threatens to become an empty ideological phrase disguising rather than elucidating the realities of rationalization. Labour-market driven organizational approaches offer a limited, if any, solution to product-market driven problems and vice versa. Criticism of what is known as re-Taylorization of labour misses the point, since it blames companies for not applying labour-market driven solutions to product-market driven economic efficiency problems.

Criticism is also levelled against the participation of workers in *kaizen* (or continuous improvement process), which is again to become the responsibility of rationalization experts. Unlike the renunciation of standardized processes and the prolongation of cycle times, this element of new industrial organization does not focus exclusively on improving labour conditions, but on efficiency increase; an increase, however, that is largely controlled by the workforce who are to be supported but not directed by rationalization experts. Active participation of the workforce in the productivity progress corresponds perfectly with the changing overall conditions of rationalization and the priority of an increase in efficiency. Some managements, however, give the impression that they are leaving the path of participative rationalization taken in the early 1990s, only to return to a rationalization policy that turns workers into silent sufferers and works councils into watchdogs of labour policy. Yet they could expect quite a few workers and works councils to happily accept such changes, given that this would re-establish old relations, where they knew precisely what side they belonged to (see Dörre, 1996a; Kotthoff, 1998). The same applies to numerous corporate managers and rationalization experts who rightly feared that top management might use participative



rationalization to curtail their functions, too (see Faust et al., 1998; Jauch, 1997).

Active promoters of participative rationalization are a minority in companies among workers, management and works councils; in past years their conceptual ideas have received such great practical relevance for the simple reason that, without mobilizing the workers' production and rationalization expertise and against their possible resistance, it would not have been possible to bring about the required productivity increases at the same time as a dramatic shedding of jobs. At the beginning of the 1990s management had to join forces with the shop floor to compensate for their failure to rationalize in the 1980s. This joining of forces entailed, for instance, concessions on the degree of freedom in labour, above all in the early 1990s when due to the specific economic boom caused by reunification and due to the fact that rationalization took quite some time to become effective there was an increasing demand for labour and therefore existing competition for labour among the companies.

Participative rationalization is therefore no answer to massive calls for participation from the shop floor, but rather the attempt to mobilize the shop floor for the inevitable reorganization measures and to turn opponents of rationalization into its advocates. Industrial participation is a management concept, not a grassroots movement, even if some elements of participative rationalization are surprisingly close to old concepts of workers' control and despite the fact that some groups of workers make full use of the participation and self-control granted them (see Dörre, 1996b; Wolf, 1994). Thus it has developed a practical effectiveness which goes far beyond all previous comparable approaches. The effectiveness apart from changed conditions particularly on the labour markets is also the reason for growing resistance to the participative rationalization which threatens the existing Taylorist rationalization monopoly of rationalization experts inside and outside the companies. They are particularly afraid of the silent coalition which the top management of many companies has entered into with their personnel in view of almost insoluble productivity problems.

Experience shows, however, that it is difficult to withdraw opportunities for participation once they have been granted. This is particularly true when workers have become accustomed to the leeway in designing their work, which also enables them to control their daily performance and efforts. It may be supposed, therefore, that leaving the path of participation, insofar as designing one's own

work is concerned, will meet with the resistance of many auto workers, above all those who perceive themselves as active players of rationalization. According to the teamwork investigations of the Sociological Research Institute (SOFI) at Mercedes-Benz, this group accounts for a good third of the workers concerned, whereas more than 50 percent are rather ambivalent about participative rationalization and just over 10 percent clearly reject it (see Springer, 1997: 286).

This resistance might multiply and spread to the large group of ambivalent workers and even the opponents of participative rationalization if the withdrawal of self-organization and participation were in addition linked with the threat of reduced basic pay because of the newly increasing division of labour reducing job contents and resulting in lower qualification requirements. Management has already painfully experienced that this can result in an explosive mixture, which needs only a little spark to explode. That is why companies and factories treat participative rationalization with special care, especially in all those cases where it made tremendous progress in past years and where it was extremely popular with workers. But in what direction do the new concepts point that are used to put pressure on participative rationalization? And do they really imply leaving the chosen path of participation, and the end of new production concepts?

### **Pros and Cons of the Japanese Production Concept**

In 1990 the journalists Joseph and Suzy Fucini published a study on the Mazda plant in Flat Rock, USA, which was published three years later in Germany (Fucini and Fucini, 1993). The study, which is based on two years of on-site investigations (discussions, observations, analyses of documents), describes an industrial reality characterized by extreme workloads and performance control above all in labour-intensive assembly line production. The production and work methods applied at Mazda are described as a system that relies on work stress to generate high productivity. The main features of the system are consistent assembly line production, short job cycles, extremely strict cycle times, small teams, strong managerial hierarchy, minimal buffers and constant increases in performance.

At the time of its publication, the description contradicted the widely held belief of German experts and the general public that

lean production was so efficient because it broadly implemented semi-autonomous teamwork in the sense of new production concepts (see, for example, Brödner, 1992). Meanwhile it is generally known that this is not the case. Numerous studies (see Babson, 1995; Berggren, 1991; Nomura and Jürgens, 1995) have described Japanese production and work methods in such detail that there is no denying that this form of production is no kind of group work that corresponds to the general ideas of semi-autonomy or self-organization held by work and social sciences, which are above all an obstacle to the concept of standardization and short job cycles. In Germany, however, Japanese production and work methods were initially integrated into the general pattern of perception, and interpretation of the discussion on Taylorism and the humanization of work and the ensuing labour policy arguments were seen from this specific perspective.

Since the mid-1990s discussions within the automobile companies in Germany have become more honest in this respect – but consequently more controversial. One of the reasons for this is that above all German affiliates of the American companies General Motors (GM) and Ford seem more and more inclined to introduce Japanese work methods – bluntly explaining this by the high labour efficiency allowed by these methods. Under the titles ‘Quality Network Production System’ (GM) and ‘Ford Production System’, the American headquarters of both companies have developed instructions for ‘transplantation’ which are today applied throughout the world. The production and work methods are thus globally standardized and harmonized without, of course, neglecting national peculiarities.

Against this background DaimlerChrysler, BMW and Volkswagen are again faced with the question of whether or not they should apply the same work methods in their plants in Germany. Comparisons of productivity show that meanwhile assembly plants with Japanese but also with American management achieve top values for production times per vehicle (see Jürgens, 1997b). Over recent years tremendous progress in productivity has admittedly been made in the assembly plants of German manufacturers too, but it was not always possible to make up for the productivity gap, since Japanese companies continued to enhance their productivity further, and others, above all American competitors, by consistently implementing Japanese production and work methods, were able to achieve productivity leaps, something which, for all

their efforts, it has not been possible for German companies to achieve. In this context, MacDuffie (1995) points out that today's differences in productivity in the international automobile industry can no longer be explained by country-specific peculiarities in dealing with the principles of lean production, but rather by company-specific aspects. Adopting these principles consistently would mean for German automotive companies giving up or at least adjusting their type of work organization, at least in labour-intensive assembly.

The reasons given for the chosen type of work organization are, among others, that high variety quality production of superior cars can only be efficiently performed if it is possible to mobilize the workers' talent for improvisation, their productivity know-how and intelligence and to integrate this into the process of rationalization. Existing regularization of work therefore had to be replaced by greater scope for action and decision-making. Meanwhile, Opel and Ford, but also Volkswagen and DaimlerChrysler practise in some plants in Germany forms of work that, more or less, deviate from this approach (see Mickler et al., 1996). With Opel, it is above all the new plant in Eisenach, with Ford, the Saarlouis plant, and Volkswagen uses Japanese work methods in its new plant in Mosel; DaimlerChrysler, too, adjusted work organization to this pattern in its new plant in Rastatt, without fully adopting it however (see Haller, 1997; Fischer et al., 1996).

In many respects, the Japanese model is similar to the ideal of standardized mass production which Henry Ford introduced to automobile production at the beginning of the century. Henry Ford knew very well about the productivity benefits of far-reaching standardization and formalization of work sequences, even though he did not focus as strongly on the elimination of 'wastage' by the workers themselves as the Japanese system does. In this respect Henry Ford advocated 'scientific plant management' which assigned the task of rationalization to the experts of industrial engineering. Lean production therefore – despite the emphasis placed on standardization – cannot unconditionally be characterized as a kind of Taylorism derivative. Japanese teamwork in production, as will be shown in greater detail later, is no 'Taylorised group work' (Roth, 1996a: 142). It is rather a unique production and work system that differs structurally from both the system of craft production and the system of mass production (see Weber, 1994a). This applies not only but perhaps especially to the way work sequences are controlled

and optimized. Japanese work methods cannot be simply characterized as 'structurally conservative' (Schumann, 1997a: 221) just because they do not entail giving up standardization and therefore bring no suspension of alienation in work.

Henry Ford and other promoters of mass production thought work standardization to be feasible only if products were rather similar and in large demand. Standardized mass demand was therefore seen as an indispensable prerequisite for the standardization of work. Wherever this was not given and where, by contrast, diversified customer needs had to be satisfied, companies assumed that improvisation took priority over standardization. Deviating from rules or even working with rather imprecise rules was seen as the adequate means of flexible, customer-oriented production.

In the early 1990s it was thus only logical, above all for manufacturers of luxury cars focusing on special customer wishes, to initially respond to the increasing variety of variants and larger demands on productivity by expanding the workers' scope for action and decision-making in order to make use of their talent for improvisation to tackle new challenges. It was rather ignored that Japanese automobile companies had proven for some time that it is possible to standardize work sequences even in high variety production, a fact which was inconsistent not only with general organizational theory but also with practical experience which demonstrated that utilization of human and machine decreases if the flow of production and work is constantly interrupted by changes of variants. High variety of variants and high utilization of production factors were seen as mutually exclusive or at least strongly contradictive goals. In other words, from the point of view of efficient production and labour economics, changing market requirements were perceived as disturbances that were to be avoided if at all possible.

It is most likely Taiichi Ohno, who founded and implemented the Toyota production system (Ohno, 1993), who earns the credit for providing practical proof that this is not necessarily the case. Human and machine can be highly utilized even if the production programme is rich in variety. Here, set-up times serve as an excellent example. Whereas western automobile companies for a long time assumed that producing different body variants in small units at the press working lines would inevitably lead to long set-up times, Toyota focused on minimizing set-up times in order to be able to manufacture different variants without prolonged machine down-times.

The same applies for minimizing cycle hold-ups at assembly lines, if different variants are assembled on one line. The variety of variants is controlled in such a way that work in the individual work stations can be standardized with the workers' help so that cycle hold-ups hardly occur. Both examples show that workers' production know-how and experience play an important role in the design of operational sequences. The Japanese model clearly differs in this context from the Taylor/Ford model that assigned this task primarily to planning experts, for instance from industrial engineering, thus degrading workers in production to brainless manual workers.

The Japanese model has no such intentions. Instead, as has been shown especially by Adler (1993) and Adler and Borys (1996), it is based on the fact that standardization of work can indeed only succeed if the workers themselves pursue and promote the standardization process. Only they dispose of the know-how required to fine tune work in such a way that it functions smoothly. And only if the workers themselves cooperate in the creation of standards can they be expected to stick to the rules they have established themselves instead of undermining them, as is normally the case. In other words, the Japanese work system tries to give new rules to the familiar game of 'making out', the corporate tug-of-war between target performance and holding back performance which was first described by Whyte et al. (1958: 21) and later by Burawoy (1979). This constitutes not only its innovative claim but also its contribution.

Had the term not yet been used differently in industrial sociology (see Schmidt, 1990), one could speak of a systemic type of work organization and rationalization where the systemic reference for the individual worker emerges from the fact that her or his individual activity is deliberately placed in the context of the entire production system and that her or his tasks are derived from system requirements but simultaneously geared towards optimizing and changing the system. The worker acts as part of a system with set parameters – for example, the priority of efficiency increase – which the worker cannot change. Within these limitations, however, the worker participates in the ongoing development and optimization of the system. It would therefore be wrong to assume that lean production and participation are totally incompatible. The Japanese work system offers the workers participative opportunities which had previously been unknown to them. Participation is

admittedly strongly controlled and systemically overshadowed with little room for individual freedom. Kieser (1994: 220) therefore distinguishes between self-coordination and self-structuring, pointing out that it is possible 'to combine a rigid structuring of group work and little leeway for self-coordination, with a high degree of self-structuring'. In this context Braczyk (1996) and Weber (1994b) rightly indicated that this conflicts among other things with the system of vocational training in Germany with its strong craft tradition, which lays particular emphasis on individual self-coordination and personal development.

### **Professionalization by Establishing Process Stability**

International comparison shows that since the 1980s only German automobile workers have had on average an extremely high level of professional qualification. This level is the result of the gradual changes that have affected the labour market since the end of the 1970s. During the 1960s and 1970s skilled workers (*Facharbeiter*) were extremely scarce in the auto industry, whereas in the 1980s, due to rising unemployment figures and despite all changes of values, skilled workers turned in large numbers to the assembly lines of automobile plants (see Springer, 1991). German auto manufacturers therefore had and still have access to a qualification potential that other countries and companies do not enjoy. They employ workers that are highly able to solve technical problems, to react flexibly to unforeseen situations and to work independently. Manufacturers of high variety luxury cars in particular have always relied on the capabilities of their skilled workers when complex high quality products had to be made. Accordingly, craft production has never been fully replaced by mass production in the German auto industry. Various experts have therefore rightly referred to the strong points of the traditional German production model, with its combination of complex quality production and qualified skilled work, which includes, among other elements, the workers' ability to solve problems independently.

Roth (1996a, 1996b) and Schumann (1997a, 1997b) perceive the strong points as the basis for a continuation of 'self-organised' (Roth) or 'structurally innovative' (Schumann) group work, something which they understand to be a starting point for a German alternative to lean production. In their opinion the Japanese work

system is no true progress compared with the Ford/Taylor system, above all because especially in manual, labour-intensive car assembly it neither promotes professionalization of work nor grants the team true self-organization. The 'Taylorist' (Roth) or 'structurally conservative' (Schumann) group work of Japanese origin does consider the special role played by the factor work (personnel) for the success of production; however, a true mobilization of production intelligence of the workers is not possible, because the concessions to

. . . activate willingness to perform and commitment are given in homeopathic doses. The still highly restrictive job profile, just as in traditional Taylorism, opens hardly any room for development and allows no re-professionalisation at all; the financially rewarded group spokesperson, introduced at least in the Eisenach plant by management, guarantees, due to his [*sic*] function as quasi-foreman with inherent supervisory and instructive authority, that the released leash is tightly held indeed. (Schumann, 1997a: 221)

Roth's criticism of 'Taylorist group work' follows the same line:

The restrictive degree of task integration and self-organisation and the rigid cycle times result in mostly negative effects on the labour conditions of the workers. Rigid time frames lead to stronger condensation of performance, a lack of self-organisation leads to unsolidary behaviour (attractive workplaces are defended, job rotation rejected, low-performing workers are marginalised) and there are no opportunities for a social process of group development. The elimination of pre-assembly makes it ever more difficult to integrate disabled persons. It is obvious that in the German production system, even in assembly, the model of 'Taylorist group work' does not make sense in terms of either labour policy or economics. It conflicts in every respect with the workers' expectations and with the qualification structure in assembly. In other words: Enormous potential of job satisfaction, personal commitment and efficiency increases is presently wasted. (Roth, 1996a: 148)

Empirical proof of this criticism can be found, for example, in the results of the group work evaluation at Mercedes-Benz, carried out between 1993 and 1995 in different passenger car plants by SOFI in Göttingen (see Schumann and Gerst, 1997; Springer, 1995). The interviews underline that the majority of the affected workers assess positively the group work practised at Mercedes-Benz, which is based on expanded activities and more self-organization, and are willing to accept higher performance requirements in return for this form of work and to participate actively in increases in productivity. Thus the deal – higher performance for more interesting



jobs and more decision-making power – which was introduced in the early 1990s by management and the group works council, was understood and accepted by the majority of workers. The resulting productivity potentials, however, did not suffice to eliminate the Japanese alternative once and for all. This raises the question of the weaknesses of a production and rationalization concept based on professionalization and self-organization.

The weaknesses clearly lie in the economic rather than in the motivational dimensions of work organization. As regards motivation, semi-autonomous group work is hard to beat, at least with the skilled workers who, due to their vocational training, are strongly craft oriented (see Senghaas-Knobloch et al., 1996). It is possible to achieve positive results with semi-autonomous group work in economic terms (see Frieling, 1997); this approach, however, requires considerable corporate input, such as qualification, better jobs, group talks during working hours (which the work groups themselves have to make up for by improved work sequences), taking over additional jobs and by working more efficiently and to some extent even faster (see Springer, 1996). Once the costs have been amortized, it is important for the workers to further increase efficiency and perform even better, given that this is the only way to compensate the productivity lag compared to competitors and to continuously improve productivity.

Work groups, therefore, have to enter into a real competition on productivity, which places high demands above all on the performance of the group and the individual worker. As a result, conflicts arise within the groups as to scope, timing and methods of output improvements – difficult and contentious questions, which cannot always be solved in consensus and which might result in severe target conflicts, above all for the elected group spokespersons. Are they to be guided by management's (the boss's) objectives or by the group's agreements? Moreover, constant productivity pressure forces the group members to employ the productivity benefits of standardization and routinization of work sequences and therefore to reduce cycles and restrict rotation. This clearly clashes with their professional interests and with the 'spirit' of group work, something which might easily lead them to fully neglect these productivity benefits. Something similar applies to the reduction of unnecessary work, such as frequently fetching material or tools, which could be stored directly at the workplace.

The constant productivity and efficiency pressure makes the groups carefully apportion this 'rationalization on their own accounts' (Schumann, 1996: 320) and to use self-organization and semi-autonomy among other things to undermine the economic aims of management or to delay their implementation (see Dörre et al., 1993). Weltz (1997: 380) therefore concludes: 'It is obvious, even without systematic evaluation, that the use of group work in many companies was not "worthwhile". It resulted in neither the expected improvement of productivity nor in positive effects on the motivation and mood of workers'. This is particularly true if poor organization (e.g. deviations in the planned sequence of vehicles) makes it almost impossible to achieve economic objectives and if workers come under extraordinarily high pressure to perform and improvise. In extreme cases this might even cause the group to jointly reject performance objectives.

This, however, is not a typical or exclusive problem of semi-autonomous group work. In Japanese transplants, too, excessively high performance requirements have led to walkouts (see Fucini and Fucini, 1993; Rinehart et al., 1995), not to mention the labour disputes on working conditions that Taylorist industrial organization has had to undergo (see Kern, 1979). The problems outlined here simply show how difficult it is for companies and workers alike in a fierce global struggle for productivity advantages to forgo the productivity advantages of standardization with reference to self-coordination and reprofessionalization. Were this to become a realistic programme, its advocates would have to clearly state what the work groups could instead suggest and contribute in terms of savings and productivity improvements. The general reference to professional know-how of skilled workers, production intelligence and motivation to perform is as insufficient here as the standard reference to reduced absenteeism due to illness.

A stronger standardization of work sequences only makes sense if upstream and simultaneous processes of production and sequential control are standardized to such a degree that workers are not constantly faced with the need to integrate unplanned events into their work sequences and to improvise accordingly. As we know, standards that are constantly overthrown or changed do not even deserve the name. Before you can sensibly standardize workflow you first have to stabilize and standardize production sequences, so that as little disturbance as possible can arise in the plant in this respect. The technical keywords are 'string of pearls' and 'one

piece flow' (see Womack and Jones, 1997). In order to achieve a stable product sequence and a constant flow of production, it is advisable and indispensable to use too the production know-how of the workers, who thus obtain better access to planning and control processes that are relevant for them. The improved, more standardized design allows them to contribute their technical know-how and production intelligence and thus to create the basis for a smoother workflow for themselves.

There is a shifting of focus in redesigning automobile assembly work. Professionalism does not arise from self-organized improvisation when directly working on (assembling) the product, but from cooperating in creating process stability throughout the flow of production. Optimization of individual work stations is only part of a comprehensive system optimization by reducing system complexity, or at least, by making it controllable via standardization. Workers' production intelligence is indispensable. As manufacturing workers, they become system optimizers whose tasks differ from mere system regulation of warranty workers in automated production areas mainly because their production intelligence is not geared towards regulating machine sequences but towards optimizing work processes. The subject and object of optimization coincide therefore in the case of system optimization whereas with system regulation human labour (as the subject) dominates machine sequences (as the object). In car assembly this will not be possible unless automation fully transforms manufacturing work into warranty work (see Springer, 1987). As long as this step has not been taken, workers themselves will perforce remain the object of standardization.

The role of system optimization is particularly outstanding during product changes and start-ups, which always initially entail a process of destabilization which, together with the workers, has to be reversed. Expanding product portfolios and reduced product life cycles lend increasing importance to this task. The competitive edge is the reduction of expensive product start-up times, namely the time a company needs to regularly reach the planned daily output (peak line) of vehicles without quality defects. It directly influences how quickly the break-even point is reached and accordingly directly determines decisions on investment and location.

It is beyond any doubt that the Japanese system of work also includes opportunities for professionalization that appeal to skilled workers and stimulate their motivation. Maybe this explains why in Opel's Eisenach plant, where assembly is mostly done by qualified

skilled workers, it was obviously possible 'to create an in-house competition which mobilises the workers' creativity and to focus it on innovations that increase productivity and improve quality' (Mickler et al., 1996: 118). It has rightly been pointed out on repeated occasions that the Japanese work system is successfully applied above all in locations where a saturated labour market puts workers under extreme pressure to adjust (see Altmann, 1995). This is precisely the case in Germany, now and in the near future.

### **Perspectives for Automobile Labour in Germany**

Does this imply the end for new production concepts in automobile assembly? Yes and no. What has undoubtedly reached its limit is a form of work that opted for variability and improvization instead of process stability and standardization. This form is insufficient for the German automobile industry to stand up to the worldwide struggle for productivity, a lesson to be learned from German mechanical engineering (see Cooke, 1996), despite all the vivid praise for and appeal of the benefits of the 'German production model' (Kern and Schumann, 1998). Sooner or later it is to be replaced by a form of work and production which, by falling back on the core principles of lean production, is clearly able to reconcile the contradiction between market and production economics with the help of process stabilization and standardization. German automobile plants also increasingly manufacture varied product ranges without any ensuing decrease in the utilization of capital and labour or – as was the case in the 1980s – soaring fixed costs due to flexible automation. A reprofessionalization of assembly work in the form of a return to semi-autonomous handicraft forms of work is something that we will not see; instead, however, we will see a new and different type of professionalization marked by system optimization. The trend towards a reintegration of intellectual and manual work thus continues not only in warranty work but also in manufacturing (see Schumann et al., 1994: 643).

Given that the subject and object of standardization are for the first time identical in (manufacturing) system optimization in contrast to (warranty) system regulation, the core question of industrial sociology concerning the alienation of work or 'good work' (Badham and Jürgens, 1998) is raised in a new way. The Japanese

work system could be characterized as a particularly nasty form of self-alienation and self-exploitation, because it forces workers to use self-structuring to constantly standardize their own work and increase output. The Japanese work system, undoubtedly, exercises extreme pressure on the workers to perform and conform. System integration and social integration are closely linked, the company's economic objectives have effects on every single job. Secondary virtues, such as order, cleanliness and discipline, play an important, if not outstanding, role. Values such as self-realization and autonomy are of subordinate importance. Corporate life is ruled mainly by system requirements, there is a kind of 'cultural imperialism' (Deutschmann, 1989) of corporate objectives, which, via management, seeks to dominate workers' behaviour in all its dimensions. This order in Japanese automobile companies is based not only on extremely strong loyalty between workers and management (see Deutschmann, 1996: 151) but also on a rigid bureaucratic centralism which strongly stabilizes the consequent standardization and regularization.

In German automobile companies we are, however, faced with a contradiction in this respect which gives rise to the assumption that in Germany standardization will by no means lead towards a tension-free, functional perfection of all production and work sequences. This contradiction originates in the decentralization of companies that has been going on for years and the subsequent mobilization of internal market and competitive forces, something which Japanese companies have not – yet – been faced with (see Faust et al., 1994; Hirsch-Kreinsen, 1995; Köhl, 1994; Springer, 1998b; Wolf, 1997). By analogy with the former planned economies of Eastern Europe, since the late 1980s major German enterprises have tried to handle their internal processes more in line with the market economy and less according to planned-economy terms. Competition and market economy *laissez-faire* (see Polanyi, 1977: 169) have virtually been ushered into the companies, internal customer–supplier relationships have been set up, fuelling an in-house competition of suppliers.

What is applicable externally is now to be applied internally as well. In in-house supplier competition, the contract goes to those competitors who offer their products at lower cost, which normally means more productively, than their internal or external counterparts. The same is true in the case of location, when decisions

have to be taken as to the plant in which a new vehicle is going to be built. Such a procedure forces in-house competitors to stand out against competitors from inside and outside and to generate and secure productivity advantages from their own production and work methods. The idea of one best way conflicts with the procedure that requires all players to find their own best way. Were all areas of production of a company competing against each other to use the same production and work methods, it would be difficult for them to bring about productivity advantages.

The principles of decentralization and competition are somehow contradictory to the principle of standardization, which in turn always stands for harmonization and egalitarianism and, thus, planned economy bureaucracy. In order to be able to stand up against competition and to secure productivity advantage it is therefore advisable to keep production and work systems open for change and development and to prevent them from being paralysed by all too rigid standards and formalisms. They need a sufficient degree of elasticity in order to maintain their distinctiveness and to remain in the lead despite all standardization of processes. This requires, however, the workers to be able to abandon set standards and formalisms, but in a collective rather than an individual sense. Individual deviations from the rule are only tolerated insofar as they can be translated into a new collective standard. In this respect, individual freedom is indeed fairly restricted in the work system, there is a strict collective order which, however, has not been irrevocably defined for all eternity but which can be adjusted within certain limits. The limits can be set either rather narrowly or rather widely; they are thus an object of labour policy.

As has been pointed out before, the participative element plays a role in the Japanese work system, too. And here it even exceeds the new production concepts to some extent. The process of rationalization itself becomes the object of participation. This might even signify an important piece of appropriation of production by the producer. A stronger integration of workers into the existing production system can only be achieved at the price of allowing them a co-domination of the system. In precise terms that means that planning and rationalization experts, the offspring of 'scientific plant management' whom the workers like so little, will lose their current influence over work and rationalization activities and, consequently, over the workers. This is where the Japanese work system exceeds the new production concepts which basically stick

to blue-collar work when redesigning work. The Japanese work system redefines the boundaries between planning and execution of work and enlists the workers for tasks that previously had been exclusively dealt with by lower or middle management or experts.

This heralds the end neither to the 'bureaucratic capitalist universe' (Wolf, 1997: 211) nor to alienation. Internally it is not even a matter of more 'economic democracy' (Fricke, 1997: 17), given that there is hardly any substantial impulse, let alone any assertive protagonist, to be found at the 'grassroots level'. Participative rationalization is no alternative emancipatory act against the capitalist enterprise, but yet another step on the long road of gradual integration of the (remaining) workforce into the dominating industrial production system, which was the starting point of Mallet's (1963) reflections on the 'nouvelle classe ouvrière' more than 30 years ago. It is a matter of their continued participation in industrial power which in the interest of tackling the pending problems, above all the increase in productivity, has to be divided among all parties involved – now more than ever.

In fact, workers experience greater participation in the process of rationalization, which during this century has increasingly become the monopoly of rationalization experts emerging from 'scientific plant management'. This monopoly is now under attack from the management itself, given that in the global competition for productivity and location the rationalization know-how of workers is a source of value added to the companies that is every bit as important as the rationalization know-how of experts. They, in turn, defend their existing rationalization monopoly and fight against participation of workers in the rationalization process. As a result there is plenty for critical sociology to investigate in the newly enlivened dialectics of industrial rationalization, theoretically and empirically, in order to better understand it and be able to (co-)design it.

## Note

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