

**INTRODUCING NEW TECHNOLOGY:  
DOES UNCERTAINTY UNDERMINE  
MANAGERIAL CONTROL STRATEGIES?**

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## **Abstract**

This contribution attempts to make productive use of the concept of uncertainty for an analysis of management practice and the role of employees in processes of restructuring at establishment level. We assume that changes like the introduction of new technologies and associated measures of reorganization are a process characterized by a high amount of uncertainty. This can be particularly asserted for current efforts to integrate the various subsystems and processes of a firm on the basis of information technologies. It is suggested to view restructuring-measures as labour processes which primarily concern the level of middle management. We propose an analytical differentiation of such labour processes into four complexes of action which can be circumscribed as problem definition and formulation of objectives; provision of technical means and procedures; integration of the process itself; and, integration of the process with the organization. As distinct from conceptions of management as a passive executor of functional requirements or as an agency of the non-problematical implementation of unified strategies we lay emphasis on substantial, social and temporal aspects of uncertainty as a fundamental action condition of management. This perspective leads us to a three-fold argument: first, that the various zones of uncertainty in the process of restructuring permit the emergence of political processes that are manifested in persuasion, negotiation and conflicts; secondly, that the capacity to exert control over zones of uncertainty is exercised as a source of power in the evolving political process; and, thirdly, that the uncertainty of the course and outcome of the restructuring-process confronts the top management with the problem of its control, the solution of which is attempted by means of various combinations of distinct control elements whereby the management itself is both subject and object of these control strategies. Analyses of restructuring-processes concerned with the introduction of information technologies in various industries represent the empirical basis for these arguments.

## **Zusammenfassung**

Dieser Beitrag stellt das Konzept der Ungewißheit in den Mittelpunkt einer Analyse der Managementpraxis und Rolle der Beschäftigten in betrieblichen Restrukturierungsprozessen. Wir gehen davon aus, daß Veränderungen wie die Einführung neuer Technologien und damit verbundener organisatorischer Maßnahmen ein durch mehr oder weniger hohe Ungewißheit gekennzeichneter Prozeß sind. Dies läßt sich insbesondere für die gegenwärtigen Bemühungen um die Integration verschiedener betrieblicher Teilbereiche und -prozesse auf der Basis von Informationstechnologien behaupten. Wir schlagen vor, Restrukturierungsprozesse als vornehmlich auf der mittleren Managementebene angesiedelte Arbeitsprozesse zu betrachten und analytisch in vier Handlungskomplexe zu differenzieren. Diese können umschrieben werden als Problemdefinition und Zielbildung, Bereitstellung von Verfahren und technischen Mitteln, Integration des Prozesses selbst und Integration des Prozesses in die Organisation. In Absetzung von Konzeptionen des Managements als bloßem Vollzugsorgan funktionaler Erfordernisse und unproblematischer Umsetzung einheitlicher Strategien werden die dabei auftretenden sachlichen, sozialen und zeitlichen Aspekte von Ungewißheit als grundlegende Handlungsbedingungen des Managements betont. Diese Perspektive führt uns zu einer dreistufigen Argumentation: erstens, daß die vielfältigen Zonen von Ungewißheit im Restrukturierungsprozeß Raum schaffen für politische Prozesse in Form von Überzeugungsversuchen, Aushandlungen und Auseinandersetzungen; zweitens, daß die Fähigkeit zur Kontrolle über einzelne Ungewißheitszonen als Machtquelle in den sich herausbildenden politischen Prozessen zum Tragen kommt; und drittens, daß die Ungewißheit und weitgehende Offenheit von Verlauf und Ergebnis des Restrukturierungsprozesses die Unternehmensleitung mit dem Problem seiner Kontrolle konfrontiert, dessen Lösung mittels unterschiedlicher Kombinationen einzelner Kontrollelemente angestrebt wird, wobei das Management selbst sowohl Subjekt als auch Objekt dieser Kontrollstrategien ist. Analysen von Restrukturierungsprozessen im Zusammenhang mit der Einführung von Informationstechnologien in Betriebe verschiedener Branchen bilden die empirische Basis für die vorgetragenen Argumente.

## 1. Introduction

An assessment of fundamental trends in the organization of the labour process is becoming increasingly difficult. The thesis of a Taylorisation of work as an expression of a progressive subordination of human labour under capital is still being adhered to also along with the spread of computer technologies (Braverman 1974; Benz-Overhage et al. 1982). At the same time, however, the diagnosis of a paradigm-shift, which reflects a new esteem for human labour, integrated work-roles, responsible autonomy and a re-professionalization of skills also finds considerable support (Kern/Schumann 1984; Piore/Sabel 1984; Friedman 1977). Not only do existing generalizing interpretations of findings differ internationally (Lane 1987) but also for one and the same national society.

These contradictory assessments of trends in the organization of work have had considerable influence on the development of theory in this field. Determinist conceptions, regardless whether they view technical change, product markets, the logic of capitalist accumulation or, generally speaking, environmental dynamics as the central factor determining the structure of the labour process, have been increasingly met with scepticism. Instead of a uniform determinism the relative independence of the labour process has been emphasized (Littler 1982:36). This theoretical position maintains that there exist various forms of organizing the labour process which are equally compatible with the requirements of the capitalist mode of production, not just one. Moreover, the conception of an unequivocal relation between technology and work organisation cannot be maintained either. Thus, Taylorism cannot be regarded as representing the end-point in the development of capitalist labour processes. However, it is equally impossible to sustain the hypothesis that restructuring processes in enterprises have reached a turning-point in a more or less irrevocable development, leaving behind fragmentation, standardization and de-skilling and heading for making use of labour power in its entirety.

Actor-centered and process-oriented approaches attempt to fill the explanatory deficits of deterministic conceptions and to explore the structuring of the labour process. In doing so, it is inadequate simply to identify agency in the processes of restructuring on establishment-level as rational action of a single, homogeneous

subject. Meanwhile, such a model has been repeatedly criticized as fiction (Berger 1984; Wilkinson 1983; Knights/Willmott 1986). The following major objections may be brought forward:

- The process of restructuring on establishment-level does not correspond to a scheme of choosing optimum means for given ends. Rather, considerable contradictions as regards objectives and uncertainty about available means have to be regarded as central moments.
- It would be misleading to assume a homogeneous decision-maker. Not even management can be regarded as a monolithic block whose actions in the process of restructuring are oriented according to uniform interests.
- Employees cannot be seen as mere objects in the whole process. Rather it has to be acknowledged that they might try to pursue their own interests. Also among this collective actor one can assume a plurality and divergence of interests.
- The problem of transforming purchased labour potential into labour holds true also for processes of restructuring on the basis of information technologies. Therefore it can be assumed that technical and organizational change at establishment-level is subject to efforts of steering and control by top management.

Summarizing these objections one can see that all points of criticism are related to the insufficient consideration that has so far been given to aspects of uncertainty in processes of restructuring. In our contribution which deals with the introduction of information technologies this process-characteristic will be in the foreground. The argumentation is based on results of case studies in the white-collar area of industrial plants, in the banking industry and in retailing firms. They concern the introduction of information technologies for computer-integrated design (CAD) and other functions in the pre-production sphere, office automation, data base- and management information systems and integrated stock control, reordering and distribution systems.



## **2. Uncertainty as a central moment of restructuring at establishment level**

Theoretical approaches dealing with the labour process address the aspect of uncertainty in various ways. Authors of the labour process theory have focussed on the uncertainty of converting labour power as a potential into productive effort which is regarded as the central problem of the capitalist enterprise, which necessitates management control. Hierarchical differentiation within management implies that operating activities within management exist and that such managing reorganization processes can also be regarded as labour processes which are necessarily subject to control (Buchanan 1986: 79, Hyman 1987: 30). The problem of uncertainty in this context has been recognized in the labour process debate by pointing to the uncertainty of the outcome and implications of strategic change, mainly caused by the ambiguities of political struggles and negotiations (Batstone et al. 1984: 286). Our contribution, however, looks at uncertainty in the process of restructuring as a specific condition of management action.

The analysis of political processes in organizations may also be based on the notion of uncertainty by referring to the conception of Crozier/Friedberg (1979). According to them, sources of individual or group power stem from the capacity to keep actions uncertain and, by doing so, to make others dependent in their options to act. There are typical 'zones of uncertainty' in organizations, like expert knowledge, relations to the environment (i.e. suppliers, banks, etc.) information, or rules which may serve as sources of power to those who are able to control them against others.

From an organization theory perspective technical change and reorganizations at establishment level are regarded as strategic decisions characterized by a particularly high degree of uncertainty because of the novelty and complexity of the process and the openness of its result (Mintzberg et al. 1976). This characterization holds still more for current tendencies of restructuring which can be interpreted as attempts to integrate the various processes and functions within the enterprise on the basis of information technologies. These measures aim primarily at increased transparency, higher flexibility and cost reduction. The realization of these objectives confronts the actors involved in this effort

with enormous problems of adaptation not only among specialized functions but also among different groups and interests within the enterprise (Baethge/Oberbeck 1986: 76, 141).

What we attempt is to integrate these different perspectives within one approach. In doing so we conceive the process of restructuring as a specific labour process which is characterized by a particularly high degree of uncertainty. To further elaborate the various aspects of uncertainty we refer to a conception for the process analysis which is oriented along Parsons's AGIL-scheme (Schienstock 1975). With this conception the process of restructuring may be analytically separated into the following functionally defined action complexes: definition of problems and objectives; preparation of means, resources and procedures; integration and organization of the process and integration of the process into the organization. However, contrary to what a functionalist approach might suggest, we do not assume that processes of restructuring necessarily and automatically develop towards an integration into the existing organization.

Rather, according to our understanding the four complexes of action can be regarded as zones of uncertainty in processes of restructuring at establishment level. Furthermore we differentiate between a substantial, a social and a temporal dimension of uncertainty (compare table). The uncertainties in the definition of problems, the disposal of means, the integration of the process itself and its integration with the existing organization are regarded as starting points for and sources of power in political processes on the one hand and, as problems of control for top management on the other. Our interest is primarily oriented towards the processes of persuasion, and the struggles and conflicts over the introduction of information technologies within management as well as between management and employees, and, secondly towards the top-level executives' capacities and efforts in controlling and steering the whole process. At first the zones of uncertainty in the process of change which are displayed schematically in the table need some further characterization on basis of our empirical material.

Table: 'Zones of uncertainty' as points of controversy and sources of power in the political process of restructuring at establishment level and object of control by top management

<div> <div>Dimen- sion</div> <div>Func- tion</div> </div>	substantial	social	temporal
Definition of problems and goals	substantial, technical, economic problems and goals (scope, consistency)	roles of problem- and goal definition (consensus)	point of time, stability of definitions
Provision of means, procedures, resources	technical systems, concepts of use, budgets	expert roles, social relations	time-limits, required amount of time, planning
Integration of the process itself	consistency of partial tasks and processes	ability and willingness to cooperate; integrative roles	synchronisation of interdependent tasks
Integration of the process with the organization	substantial and technical adaptation, know-how-transfer, implementation	acceptance; cooperation between project-team and staff	adaptation of 'organization-times' and 'process times', date of routinization

Even the question of definition of problems and goals associated with the process of restructuring is imprinted with uncertainty. There are no sufficiently clear and objective criteria rendering the definition of problems and objectives adequate. The general imperatives of capital valorisation and upholding relations of domination offer an equally insufficiently concrete basis for that purpose as they do for the determination of the adequacy of the point in time, at which a certain aspect of the status quo of an enterprise is seen as a problem. Nor do ownership rights and hierarchical structure of the capitalist firm directly imply a monopoly of the role of initiating change and defining problems and solutions on the top level. Rather one can find individuals and groups with competing views of problems and objectives, for instance distinct definitions of problems by line departments that differ from those of central departments.

According to the latitude of problem and goal definition it has not been stipulated what means is to be regarded as adequate means to achieve the object. This implies a certain openness in the decision over particular technical systems and concepts of using them, the required financial resources, expert knowledge, time budgets and, the availability of these. A crucial problem in this is the lack of efficiency criteria for the ex-ante judgement of techno-organizational innovations, particularly in the area of service labour, which is the branch of industry of our research cases (cf. Berger/Offe 1984; Wilkinson 1983:83-86). The uncertainty of the degree of automation and integration by means of information technologies to be strived for, the decision for centralized or decentralized configurations of computerization and the required amount of material resources can be regarded as a consequence of it.

One of the firms covered by our case studies, a retailing firm, had estimated the capacity of its mainframe computer required for the establishment of an integrated ordering, stock control and distribution system far too low. The purchased system reached its capacity limits already after one year, which caused considerable trouble for the firm. Paradoxically, it was the success of the enterprise that had been the main cause of the misjudgement: there had been such a tremendous increase in turnover that was not and would not have been expected by management. The consequences of this, together with the resistance of the sales department against the last step of computerized integration led to a completion which was delayed by years compared with the original schedule.

Apart from that, choice and provision of adequate resources and procedures for the process of restructuring are confronted with an open situation concerning the exercise of expert roles as a social aspect of uncertainty. Whether it was a prospective user department itself, an internal EDP-department or external EDP-firm, a central department of the enterprise or an external consultant that came to be regarded as competent for the means of computerization turned out to vary considerably among our research cases. It also became repeatedly evident that the amount of work and time required for a particular concept of restructuring was underestimated. This was indicated by an increase of project teams and changes from extra work to full-time jobs in project functions.

The integration of the process itself first raises the question which technical division of work is chosen and whether a consistency among the various single tasks and processes is achieved. The practice of starting with exploration and pilot-projects, as frequently observed in cases of major reorganizations, serves among others the function of giving assistance in these questions. So, for instance, the originally rigid division of work within a project team concerned with the development of applications on the basis of a computerized central data base had to be dispensed with. It had turned out that the necessary temporal synchronisation of interdependent tasks could be better warranted by overlapping functions, i.e. by a more flexible work organization among the subgroups of the team.

A decisive unknown variable for the integration of the process of restructuring, however, has to be seen in the problem of guaranteeing the required amount of cooperation between the various social actors and groups involved. On the one hand this concerns the ability and willingness to cooperate on the part of the immediate participants of the restructuring activities. Efforts to reduce this sort of uncertainty showed up in our case studies in several ways. Among them are specific forms of project organization and recruitment policies for project-team members which take the social relations within the firm into consideration, as well as the programming of work and communication roles with integrating effects like, for instance, the role of 'EDP-coordinators' from line departments etc. On the other hand, the flow of a restructuring-process depends on a varying degree of readiness to cooperate on the part of the wider collective of

employees and their interest organizations. To ensure this cooperation is as much uncertain as it is a general strategic problem for management to develop most favourable industrial relations (Streeck 1987). A pronounced policy of employee participation in the process of restructuring is often applied as a strategy to enhance acceptance and thus to reduce the uncertainty of the willingness to cooperate (Schienstock et al. 1986). However, this has to be seen as a contradictory strategy itself which may create new uncertainties as well (Rose/Jones 1985:94). Indeed, the degree of employee participation and integration of work councils turned out to vary considerably among the cases of our study.

Finally, there are those further zones of uncertainty arising along with the requirement to integrate the process of restructuring, or, in other words, the activities and outcome of the techno-organizational change, with the existing organization. Open is the solution to the problem of continuous adaptations in substantial and technical matters, the problem of the necessary knowledge transfer between members of the restructuring-project and the enterprise as a whole, and, the problem of a technically perfectly operating implementation. In the development of a computerized database system, for instance, an acceptable adaptation and division of the work required by line departments as a contribution to the project and their routine work could not be successfully established. The more complex the process of restructuring is and the longer it lasts the more does the temporal adaptation of project activities and 'business as usual' gain weight. To give an example, during the innovation processes repeatedly solutions had to be found regarding interruptions by unforeseen incoming orders in industrial plants or changes in legal obligations concerning the banking industry. In how far cooperation between project-teams and the other members of the organization can be realized may be more or less questionable. Much more so is the acceptance of the final result of the whole process in terms of a reorganized labour process. This is underlined by the central position of efforts oriented towards an enhancement of acceptance in many of the cases investigated.

Concluding this section we hope to have made clear that restructuring at establishment level as a labour process can neither be assumed to be based on unequivocal and unanimously recognized problems and solutions nor to be clearly

prestructured as regards implementation and outcome. This does not imply, however, that management and employees were helplessly at the mercy of a sea of uncertainty. And by no means do top level executives of a firm allow the course and result of restructuring-processes to become a completely open series of events subject to all kinds of particularistic influences and coincidences. The following sections develop the argument further by taking up some implications of the problems of uncertainty and getting down to them again based on our empirical research results.

### **3. Political moments in the process of restructuring**

Technical change in the enterprise is not only a process characterized by a high degree of uncertainty but also a deeply political process. The internal connexion of these two attributes has not been sufficiently recognized. This connexion, we argue, lies in the fact that the existence of various zones of uncertainty represents a gate to, a stimulus and medium for the development of power relations and struggles of interests in which members of management and employees get involved.

The understanding of the political aspect in technical change at establishment level is now widely shared although the interpretations of the nature of the political processes vary considerably. On the one hand there is the position which regards power relations and struggles of interest along with the introduction of new technologies as an expression of intra-firm 'action-constellations' without a perceptible pattern of an underlying structure (cf. Weltz/Lullies 1984). The action-constellations are meant to be constituted by a manifold but diffuse combination of formal competence, real influence potentials and interests of the various actors. Interests are differentiated into commercial, personal, positional and professional ones (c.f. Berger 1984:121). This contrasts with views which see structured conflicts in the political processes stemming from contradictions of the capitalist enterprise (cf. Hyman 1987:32).

Two central contradictions are frequently stressed. One concerns the relation among distinct functions in the circuit of capital, that is between different functional areas of the enterprise, the other concerns the relation between capital and labour. The first kind of contradiction lies a) in the collision of the particularistic rationality from the perspective of the enterprise as a whole, or b) in the collision of requirements of market- and client relations with the necessities of production or administration. Such a contradiction between 'production-' and 'market economy' expresses itself, for instance, in the phenomenon that the organization of the production process according to cost and time criteria has to put up with a loss in flexibility and adaptability vis-à-vis market fluctuations (Brandt et al. 1978:23; Sohn-Rethel 1972). The second fundamental contradiction is built into the relation between management and



employees: the control over the labour process requires the direction and surveillance as well as the mobilisation of motivation, cooperation and responsibility (Hyman 1987:32). This contradictory relation will be discussed later on.

Our empirical results tend to support the structured conflict thesis. The political processes and action constellations associated with measures of restructuring are significantly imprinted with contradictory requirements. They form a kind of background structure which comes to the fore as conflicting views, values and interests within management and in the relation between management and employees. However, they do not determine political processes and are not their only source.

### **3.1. Politics within management**

There are recurrent lines of conflict in the struggles and negotiations along with the introduction of new technologies which make a complete absence of structure in observable action-constellations improbable. Typical examples are the tensions between administrative and sales or marketing departments, between internal and field service, or between EDP- and line departments. The manifold moments of uncertainty in the process of restructuring are of importance insofar as they can be used by individual actors or groups within the firm and also from outside to bring to bear their distinct interests, perspectives and action orientations. Especially among parties on the same hierarchical level zones of uncertainty represent sources of power for those actors who are able to control them in relation to others. Our empirical analyses of the introduction of new technologies gave us sufficient information on the phenomenon that such power games and struggles have evolved around zones of uncertainty, starting from the definition of problems to the integration of the final outcome with the existing organization.

Even the kind of problem definition which underlies the process of restructuring tends to be strongly contested. It represents a precedent for the outcome strived for, for the distinct means which different actors can bring to bear and thus for their future position in the enterprise. Divergent views and associated conflicts especially between line and organization/EDP departments which are also

described by Weltz/Lullies (1984:157-160) are a frequent pattern in the introduction of office automation systems. In the case of word processing line departments had regarded actual problems as regards 'writing', that is qualitative aspects like flexibility and service quality as central, whereas the department of organization which was responsible for the introduction, identified the efficiency of the functional area solely in quantitative terms as the problem. The organization department's conception also included saving of personnel and a centralized, highly divided work organization. Similarly to Buchanan (1986), Weltz/Lullies attribute this way of problem accentuation, in the last instance to the organizers' own needs for legitimation, i.e. their personal interest in the visible and measurable proof of the success of the reorganization.

Our empirical results show similar patterns of conflict over the definition of problems. However, in our view they suggest an extended explanation which refers to contradictions between functional specialisms within the firm and to integration requirements resulting from these as well as to the power positions stemming from control over certain zones of uncertainty. The various line departments base their definition of problems in general on the immediate work reality and the particular rationality of their functional area. Organization departments, however, most likely assume the position of representing rationality from the perspective of the enterprise as a whole and define the reorganization requirements from this point of view. In the competitive process of enforcing their problem definitions line departments primarily depend on expert knowledge and intimate acquaintance with the specific area as a power resource. Organization departments, on the other hand, enjoy a privileged access to the top executives of the enterprise and a power advantage derived from that central position. Besides that, they dispose of a certain amount of control over the availability of technical means due to their frequently close association with EDP-departments and, as part of their formal function, they are able to determine organizational principles, rules and procedures. However, during the evolving struggles the position taken by organization and EDP-departments typically does not come to the fore as the position of the top level, which then hardly ever leads to hierarchical conflicts. The diverging definitions of problems and objectives rather end in lateral struggles between departments.

Conflicts between the management of line and organization/EDP-departments manifested themselves most clearly in a big and highly differentiated bank among our case studies. For the heads of several line departments in the back-office area accomplishment of tasks had become increasingly difficult, primarily due to bottlenecks concerning staff, growing amounts of over-time and sluggish work flows. They saw the solution in a prompt introduction of decentralized computer assistance as a strategy of increasing efficiency. The organization/EDP-department, which had the formal overall responsibility for automation affairs certainly shared the objective as far as an increase in productivity was concerned. However, it stressed the lack of management information for steering purposes and for the control of business relations with clients as the crucial problem. According to this perspective, it had developed a 'strategic line of automation' which strived for establishing a centralized data base system with specific departmental applications and a multifunctional system of office automation. Because of the vast amount of development work and manpower required for its realization, this far-reaching conception implied to be scheduled for a much longer time. This did not at all coincide with the needs and interests of the line departments. A precondition for the centralized database was to build up basis-data for each functional area. Initially this caused additional work load without immediate benefits instead of relief, and, moreover, a computer assistance could only be expected at an uncertain, at least much later date.

One can understand therefore that the management of line departments opposed the intentions of the organization/EDP-management to solve their problems on the basis of a centralized data base system and insisted on a prompt decentralized variant. Single line departments had already managed to get decentralized micro-computers admitted by the directorate and had tinkered 'island solutions' by means of externally purchased standard software or minor developments by themselves. These were not compatible, however, with the construction of a centralized data base system. The EDP-management therefore refused to assist line departments with their 'island solutions'.

Finally the organization - together with the EDP-department managed to persuade the board of directors to decide in favour of the centralized data base system also as the solution to the line departments' needs for computer

assistance. The organization/EDP-management thus had succeeded by making use of the means over which it disposed. The burgeoning 'wild growth' of island solutions with department-own 'data-nests' suspiciously observed by the organization/EDP-management served as its main argument. The conflict among the middle management, however, was not brought to an end by the decision, but was continued with mutual blockings. Line departments more or less delayed contributions to the data base project while the EDP-department withheld itself from assisting line departments with development and service activities. The dispute was additionally fed by the line departments' dilatory or in some cases, completely lacking realization of an organizational reform worked out by the organization management. Therefore it cannot yet be regarded as decided whether the organization/EDP-management acting with the claim to represent the interests of the enterprise as a whole will finally supersede in the power struggle.

The power acquired by organization- and EDP-management due to their capacities of controlling zones of uncertainty in the process of restructuring along with computerization is considerable. Nevertheless, normally a lack of willingness to cooperate on the part of line departments involved in the process cannot be simply ignored. Our research results rather show that EDP-and organization managers apply all kinds of measures in order to win the cooperation and acceptance of the managers and of the employees of line departments. These efforts comprise attempts of persuasion and exerting influence in seclusions with the aid of internal opinion polls, the placing of 'EDP-interlocutors' into line-departments, the creation of specific communication roles, for instance in the form of EDP-coordinators or contact persons in both spheres, and also the selective integration of persons into project-teams. The latter strategy - often combined with conscious exclusion of anticipated opponents - concerns actors who are strategically important and/or show a favourable attitude towards the interests of the EDP-department.

Sometimes chronically conflict-loaden relations between line departments represent an additional barrier for integration projects, which was evidenced in an industrial plant and a retailing firm among our case studies (construction versus sales department; sales versus administration department) . In the case of the conflict between sales department and internal administration the contradiction

between the rationalities of functional specialisms which was mentioned earlier expresses itself clearly. However, comparing the industrial and the retailing firm the outcome of, the struggles and the resulting reorganisation of the labour process in the sales department was quite different.

In both cases the internal administrations initiated the computerization of the execution of sales activities. Their objective was to gain more control over the arrangement of sales conditions and as a consequence an increase in efficiency for the administration. The sales managements, on the other hand, did not feel any motive for it and resisted the projects. Their interests lay in a maximization of sales and hence in a most autonomous disposal over conditions of sale, terms of payment, delivery, etc. irrespective of the problems that arise for the internal administration due to special arrangements and concessions. In the industrial plant the sales department successfully opposed against the initiator's idea of a joint project-team. It could negotiate a solution which finally avoided sales execution becoming significantly integrated into the computer system. One can assume that in this case the sales department disposed of an important power resource insofar as the sales-persons had acquired individual stocks of clients.

In the case of the retailing firm the motive for the head of the internal administration to plan a strict 'computer-led' sales execution was also to undertake something against what he perceived as the 'notorious slovenliness' of the sales department. This last step in the construction of an integrated system had been certainly delayed significantly compared with the original schedule, due to the sales department's resistance. But the sales-persons were in a comparatively bad position. Their substitutability was very high as for the retailing business in consumer goods industries it sufficed to have average sales qualifications and some product-specific knowledge. Therefore, after some attempts to persuade the sales manager had failed, the administrative management was in a position to execute the whole project more or less on its own against the resistance of the sales department. The necessary detailed knowledge of the scope of potential constellations in the sales execution could be made available from own experience and assistance from individual sales specialists. As a consequence, the hitherto ineffective written principles regulating sales conditions were now enforced by computerization. So the head of the administration

could successfully realize his idea of restructuring the sales area, although it cannot be excluded that negative effects on future sales might outweigh efficiency gains in administration. It should also be mentioned that in the course of the implementation of the highly contested computer assistance in sales the sales manager was replaced and several sales-men who did not want to resign to the narrowed latitude in handling sales conditions left the firm.

In most cases a close symbiosis of organization and EDP-management can be observed and hence major control over technical resources represents a common source of power for them. But there are also limits of common interests. An awareness of the danger that the interests of EDP-departments could become independent was evident in several cases. This danger is increased by various commercial strategies of computer firms, like attempts to place their own EDP-specialists into EDP-departments in order to get a foot into the door, or to utilize intra-firm conflicts in favour of their interests. The organization management protects its own options, for instance, by voting for the employment of external EDP-services instead of increasing internal EDP-manpower beyond a minimum level, or by bringing in external consultants. On the other hand, we found some indications that EDP experts endeavoured to and repeatedly also had managed to achieve leading positions in organization management. This may well be regarded as an expression of a kind of 'collective mobility project' of a whole profession, as Armstrong (1986) analyzes it for the specialists in accountancy and personnel management. In their struggle for key positions in management EDP-specialists try to improve their social position in similar ways against other professional groups like economists, lawyers etc.

In conclusion of this section we might summarize as follows: The manifold moments of uncertainty of restructuring-processes give space to the development of political processes as the expression of particular interests, values and objectives within management. The empirical results support the argument that processes of negotiation, conflicts and power struggles are not only conditioned by idiosyncratic action constellations of the establishment. Rather, our evidence allows us to uncover also more general patterns. They have to do with structural contradictions and bring to the light the power basis of the actors involved as located in their capacity to exert control over zones of uncertainty in the process of restructuring.

### 3.2. The worker - management relation

Research on the restructuring of the labour process is focused mainly on management. Some studies take employees into account in this process but their influence on technical and organizational change is assessed quite differently.

From the perspective of an approach, which sees the development of the labour process as an ongoing process of real subordination of labour under capital, workers are lacking any substantial influence on the restructuring of the work organization (Brandt et al. 1978; Benz-Overhage et al. 1982). Those authors, which interpret technical and organizational change as outcome of class struggle, admit a more active part to the workers (Edwards 1979; Friedman 1977). However, workers' participation in the labour process is often seen solely as resistance against management's strategies of changing the organization of the labour process (Schumann et al. 1982). It can be doubted, whether those more historically oriented studies are suited to interpret concrete behaviour in organisations. And the objection can be raised that the class struggle model is neither able to take the aspect of consent into account (Burawoy 1979) nor to permit diverging interests among workers.

The last aspect is discussed by Kern/Schumann (1984) in more detail. They found that only those workers who, due to their central position in the production process or their specialist knowledge, regard themselves as winners of the organisational and technical change, play an active part in the restructuring process. The interests of this group of workers, it is argued, are not just limited to the maintenance of their position in marketing their labour power, they also strive for autonomy in decision-making and more demanding work. Their behaviour has nothing to do with class struggle, what they do is to pursue their interests through bargaining based on a so called 'social pact'. As distinct from that, workers who do not expect any advantage from the restructuring process, show a more defensive behaviour. They try to avoid any deterioration of the conditions of the utilization of their labour power. The third group, the potential losers in organizational change, lack any power resource to engage actively or even to avoid disadvantages that could come out of the restructuring process.

In our study we could not find much evidence that could have been interpreted as a clear expression of class struggle. Collective refusal to cooperate with management, the most powerful means of workers to influence the restructuring of the labour process, did not show up in our case studies. Class consciousness and class struggle do not seem to be an important factor of uncertainty that management would have to particularly take into account. But the general conclusion, that class struggle has vanished cannot be drawn out of our findings either, as for instance none of the enterprises in our study was under serious economic pressure. Collective action only arose to resist the introduction of shift work and technical surveillance systems. Even where management declared labour saving as a main goal of the restructuring process, workers did not go on strike or take any other serious action against management.

Compared to the model of class struggle, the 'pact concept' (Kern/Schumann 1984) is of much greater explanatory value for the interpretation of the findings of our study. A good example to demonstrate this interpretation is the implementation of a centralized data base system in a bank. A very important problem in this innovation process was to harmonize data from various sub-units of the firm. This problem could only be solved with the cooperation of employees from the units concerned. Another problem was to induce the employees to accept the new computer based organization of the labour process. The required specialist knowledge as well as the potential to resist the implementation of information technology have been recognized by the management as a source of power in the hands of the employees. To avoid such imponderabilities the management made the offer to reward the employees for their cooperation by leaving their privileges like job security and high wages untouched. This offer was only made to the qualified employees, low qualified workers were not included in the 'social pact'. Integrated and computer based case-work was the new work concept, to which management and the qualified employees in general would agree and this normally led to the reduction of personnel with auxiliary functions. It is hard to judge how long such a pact will last. One can imagine that the management will revoke this pact after the current period of technical and organizational change.

Such far-reaching arrangements between management and the qualified part of the staff, as we found it in the banking sector did not exist in any of the



industrial enterprises of our sample. To avoid workers' resistance against the introduction of computer aided design and flexible production systems the management often referred to generally accepted legitimizing principles (Armstrong et al. 1982) like the following: 'Engineers always have to comply with the demands of technological progress', 'innovations have to pay off', 'to take important decisions is the responsibility of management'. The general acceptance of such legitimizing principles relieved the management of the cumbersome task of 'manufacturing consent', which was typical for the banking sector. The employees of our industrial plants take technical and organisational change for granted. This type of behaviour can partly be explained by their view that technological progress guarantees job security for them. Further expectations concerning the new work structure are limited and confine themselves to a certain improvement of the work conditions. This is due to the fact that there are no legitimizing principles available and recognized as an alternative to the official organisational culture, which could be a point of reference for more ambitious demands of the employees.

Moreover the interest employees associate with the restructuring process are open to a social shaping. For instance, to make design engineers, who had to work under hard time pressure so far, interested in a computer aided design system, management emphasized, that this would allow to save time for more creative activities. This promise became the basis for the design engineers' articulation of their interest. Their demand for more creative work of course was accepted as legitimate by the management and became part of the general organizational culture. Those 'concessions' play a very important part in managements' strategy to guarantee employees' acquiescence in technical and organisational change. In this way they finally lead to the elimination of an important source of uncertainty in the restructuring process.

The situation of employees in a retailing firm, where a complex stock control, ordering and distribution system was installed, was quite different. Obviously the realization and functioning of the system could be brought about independently of the contribution of special knowledge from the side of the employees in the sales department concerned. The employees, who opposed the last step of this computerization were confronted with the ready-planned system immediately on

its installation. What the management offered to the employees can be described as a 'take-it or leave it-strategy'. The willingness of the employees to accomodate themselves to a system which restricted their latitude in handling sales conditions has been taken for granted by the management, since any attempt to resist would have led to dismissal. Because management disposes of such means of coercion it can do without additional motivation and integration strategies to ensure the cooperation of employees. Management behaviour in this case is guided along the following motto: 'Whoever wants to leave can do so' and this motto might even apply to the sales manager. The behaviour of the employees can be characterized as cynical conformity. They demonstrate only a minimal willingness to cooperate. This behaviour entails many difficulties for the restructuring process but it does not jeopardize the project as a whole.

By these examples it could be demonstrated that the role employees play in the restructuring process cannot be described by a general statement. In our study we could distinguish three management strategies to cope with uncertainty arising from the behaviour of the employees: the 'social pact'-model, 'the concept of legitimizing principles' and 'the-take-it-or-leave-it-strategy'. These concepts reflect various degrees of managements' dependency on employees' willingness to cooperate.

In the design of new organizational concepts for the labour process, especially the management in the banking house and in the manufacturing plants investigated by us had to rely on specialist knowledge of the employees. Moreover the acceptance of the new work organisation has been a serious problem for management in the banking house as well. Because of their relatively safe position the employees would have resisted any change in the labour process they did not agree with. This powerful position has been taken into account by the management through integrating the employees into the restructuring process from the very beginning.

The employees in the retailing company had a much weaker position in the restructuring process. They had no specialist knowledge, the management would have been dependent on when developing the stock control, ordering and distribution system. Moreover, due to the fact that they could easily be replaced,

the sales-persons found themselves in a position of constraint. Therefore management was able to act according to the principle 'take it or leave it' and to put the pistol to their heads.

All three models have in common that the new work concepts are not a subject of collective agreement. Therefore they may be of high instability. In principle management reserves the right to cancel the 'social pact' and the included privileges of the employees, should the situation require it.

#### 4. Senior management's control strategies

Negotiations and struggles within middle management over restructuring at establishment level do not occur under circumstances where control is absent. The organization of production and labour processes has a central position within corporate policies. This already implies that control strategies on the part of the owner or of top management aim at limiting the uncertainties of restructuring-projects by exerting influence on the behaviour and performance of project organizers and participants (cf. Flecker/Volst 1988). In analyzing particular forms of control the following state of the general discussion of control has to be born in mind: it seems neither to be useful to postulate one optimal form of control for all labour processes within the capitalist mode of production (Braverman 1974), nor to assume that there are some particular forms of control which are optimal for specific labour processes (Friedman 1979). Rather it must be assumed that concrete control strategies are particular combinations of distinct control elements (Thompson 1983:151-2). The following control elements may be distinguished systematically (cf. Etzioni 1961; Burawoy 1978; Herman 1982; Czarniawska 1983):

- prestructuring of processes with regard to substantial, personal, financial and temporal aspects
- incentives and sanctions
- legitimizing principles and 'organizational culture'.

With such an understanding we also turn against a too narrow conception of the notion of control. A problematic consequence of conceptualizing control in a very narrow sense is that it tends to tempt one into the perception that processes of restructuring at establishment level are not subject to control by the top management. This is the case, for instance, with Berger (1984) in her investigation of the restructuring of white collar work when she comes to the problem of controlling those actors who bring about changes while being caught up by conflicts and power struggles. She argues that in the rationalization of service labour, due to its specific loadedness with uncertainty, the rationality of decisions is inevitably defective and that this restricts the control capacities of the top management significantly. All measures employed for this purpose can be evaded by those who are to be controlled:

"In as much as the actors are confronted with uncertainty, as uncertainty is not absorbed by organizational structures and decision rules but is individualized, therefore there exists a specific need for loyalty, readiness for cooperation and identification with the enterprise" (Berger 1984:136).

In contrast to the idea expressed above our empirical investigations suggest that arrangements prestructured by the top level of the enterprise are effective despite the control dilemma. General methods of control like profit-centre-organization or reduction of staff also exert influence on the process of restructuring. In banking and industrial enterprises investigated they effected that line departments felt forced to introduce information technologies for purposes of rationalization. There was also a tendency among heads of departments in industrial plants to react to certain budgetary control forms with a design of the labour process along with the introduction of new technology which emphasized the division of work in order to save training costs and to achieve a high degree of capacity utilization.

Prestructuring of projects of introducing new technologies was practised more directly through the selection of people as the responsible or participating actors, through temporal and financial restrictions, and, through the institutionalization of supervisory bodies to which project teams have to report regularly. Frequently it is the group of project organizers who themselves design the time-, budget- and work-schedule for their project. These are then authorized by the directorate and become a fixed frame. The interest of project applicants in getting the proposal approved effects that it conforms as much as possible with top level objectives.

Interventions, fixed project frames and authorization procedures by the top management often follow a more or less extensive phase of preparation and experimenting. They serve the latent purpose of settling struggles over problem definitions and the adequacy of means or at least to halt these processes at a certain state. As our cases show, this does not mean that such decisions by the directorate are necessarily rational and indisputable. Rather they reduce uncertainty through the fact that the way they come about corresponds to the formal rules, that they imply the possibility of sanctions and already for that reason serve as action orientations. However, the way fixed project frames come into

being and the formal relations of subordination do not suffice to ensure that such prestructuring is obeyed. How is it possible that they become effective despite their deficient rational justification and that they are suited to limit uncertainties in the zones mentioned above?

Our case studies reveal a manifold structure of incentives and sanctions to which project-organizers and -participants are subjected. In the history of some of our cases there are examples that heads of EDP-departments are laid off when an important reorganization of the labour process does not succeed. This is one of the reasons for the readiness of these persons to integrate employees concerned as well as their interest organizations into the design process or at least to take the employees' interests into consideration. As the success of EDP- or project managers is measured in terms of the acceptance of the system by employees, one can expect - as far as the design of concrete working conditions is concerned - an improvement or at least not a deterioration.

Formal career ladders within the firm's hierarchy are of importance in this context since it turns out that through the involvement into a project both experience and reputation can be obtained which come into play in the selection of personnel for attractive positions. Besides that the management promises, creates or admits new, not necessarily formal positions which owe their privileged status to system-near tasks like data service, surveillance or training. It is evident that nowadays in most enterprises especially young men get chances of promotion to positions to which it would have been harder to advance along the conventional career ladder. Women are clearly confronted with a different situation. For them the advancement within the formal hierarchy is even largely blocked in such firms among our cases in which they represent the majority of employees. In the new EDP-near positions one finds again exclusively men. Nevertheless women are not excluded from the processes of introducing new technical systems. Rather the ascribed specific female 'work potential' is utilized strategically in several cases of our study. For instance, integrative roles which either were intended to ensure the integration of project teams or the cooperation with system users in various departments have sometimes been filled with women. The rationale behind this strategy was that they would have more empathy and better abilities to communicate in a human way.

Furthermore, women are expected to conceive the task itself as an incentive. A head of department in a bank stated appreciatively that the two women in charge of an EDP-implementation project perceived this 'like their child', i.e. they did their utmost without any particular reward being offered, except the success itself. Then, contrary to this, the head of department actually promised the new position of a 'supervisor' to a young man also involved in the project.

Normative structures and legitimizing principles, whose effect was illustrated with regard to gender relations in the above-mentioned example, also have an effect on other aspects of the process of restructuring. Such processes at enterprise level are unthinkable without a whole complex of things 'taken-for-granted'. It is usually not reflected or discussed: who is entitled to take what decisions, that efficiency and competitiveness are absolute aims, that modernisation through use of new technologies is desirable and necessary, which expectations and ways of acting are legitimate. This is how a reduction of uncertainties is achieved in the case of those that are implied, for instance, in the definition of problems of the enterprise or in the evaluation of the means and procedures. 'One cannot get around CAD', many middle managers repeat inevitably whether they can provide any calculations that prove the economical sense of such an investment or not; and technicians involved support it 'because this is the future'.

The normative and ideological elements of control are not only derived from general legitimizing principles or from a 'corporate culture' that can be more or less manipulated. Contrasting the prestructuring of actions by the senior management on the one hand and loyalty and motivation of the persons in charge of and involved in the project on the other, as was done in the quotation of Berger (1984) stated above, means to ignore the ideological consequences of the structures of fields of activity. However, the formation of interests and perspectives within the labour process itself, as described by Burawoy (1984) for piece-work, holds true for processes of restructuring to an even greater extent. For the uncertainties allowing those practices and 'games' which integrate the workers into the labour process and the enterprise are even greater.

In the case of an industrial plant, the senior management decided to implement an on-line production-planning-system within one year. The project team was

working 'day and night' in order to meet the deadline though it should have been easy for them to push through a more realistic definition of their project and time-limit because of their knowledge and power position. Yet, the unfavourable economic situation jeopardizing the existence of the enterprise influenced the interpretation of the situation by the EDP-specialists who had been associated with the enterprise for decades. These ties could not be broken by job-offers from computer-firms, as they had originated in the relatively independent development of the firm's EDP-systems and the knowledge and design of all procedures in the areas involved. Against this background a situation of competition between the internal and the external EDP-specialists emerged, which is crucial for the pattern of control. The adaptation or development, respectively, of the software according to the particular requirements of the enterprise turned out to be a power game between the internal experts who had come from various professions and had acquired EDP-knowledge by experience in the enterprise on the one hand and the specialists of a worldwide computer-firm on the other. The internal experts were able to strengthen and present their identity to a high degree (cf. Goffman 1959) by declaring the external programmers incompetent and by proving that they could be sent back without causing any delay in the completion of the project. The deadlines and the combination of personnel are perceived not only as coercive factors but also as challenges. Such uncertainties release potentials of motivation that can complement control.

The redistribution of potential conflicts from a hierarchical into a lateral dimension is observable in most cases. Generally, the technicians blame the salesmen for the pressure of time in product design and for the necessity to meet unusual customer's requirements. In the restructuring-process, rationalization goals of the enterprise appear such as to serve the particular interests of the organization- and EDP-department that are forced through in conflict with the EDP-user departments. The power struggles and political processes are not always dysfunctional and do not necessarily indicate a lack of control by the senior management. Rather, behind the seeming irrationality of the free interplay of particular interests a general control structure can be revealed by using a wide-enough conception of politics and control.



Summarizing we can state that the openness of restructuring processes does not imply a mere motivational control of the persons involved. Rather, in all cases the three elements of control: prestructuring, incentive and legitimation have certain, though different effects. Typical combinations of these elements contain normative and ideological aspects to a significant extent. However, the latter on the one hand complement the coercive elements and, on the other, may be generated by a structure of actions and social relations that is imprinted with coercive elements.

## 5. Conclusions

This contribution attempts to make productive use of the concept of uncertainty for an analysis of management practice and the role of employees in processes of restructuring at establishment level. We assume that changes like the introduction of new technologies and associated measures of reorganization are a process characterized by a high amount of uncertainty. This can be particularly asserted for current efforts to integrate the various subsystems and processes of a firm on the basis of information technologies. It is suggested to view restructuring-measures as labour processes which primarily concern the level of middle management. We propose an analytical differentiation of such labour processes into four complexes of action which can be circumscribed as problem definition and formulation of objectives; provision of technical means and procedures; integration of the process itself; and, integration of the process with the organization. As distinct from conceptions of management as a passive executor of functional requirements or as an agency of the non-problematical implementation of unified strategies we lay emphasis on substantial, social and temporal aspects of uncertainty as a fundamental action condition of management. This perspective leads us to a three-fold argument: first, that the various zones of uncertainty in the process of restructuring permit the emergence of political processes that are manifested in persuasion, negotiation and conflicts; secondly, that the capacity to exert control over zones of uncertainty is exercised as a source of power in the evolving political process; and, thirdly, that the uncertainty of the course and outcome of the restructuring-process confronts the top management with the problem of its control, the solution of which is attempted by means of various combinations of distinct control elements whereby the management itself is both subject and object of these control strategies.

The insights from our own analyses of restructuring-processes concerned with the introduction of information technologies support these arguments. They question a too tightly coupled, mechanical relation between systemic requirements of capitalist production or imperatives of capital accumulation and management practice as much as they cast doubts upon the possibility of a drawing-board-like plan and implementation of consistent, deliberately defined

strategies of control over the labour process. Such conceptions have attracted a growing criticism which, on one hand, points to the manifold mediating factors between imperatives of capitalist accumulation and the structuring of the labour process, and, on the other hand, strives for an extension of the perspective in penetrating action constellations at establishment level without necessarily denying the existence of structural conflicts of interests (cf. Knights/Willmott 1986:5-9).

The political processes of coalition-forming, negotiation, persuasion and conflict which shape technical-organizational change represent a crucial element among the mediating factors conditioning the organization of work. The capacity to control various zones of uncertainty provides the actors with a source of power within these political processes which then enables them to realize particular interests. However, this does not prevent the possibility of central control by the top level of the enterprise. Not only are the capacities to exert control over significant zones of uncertainty distributed unequally among management: In the last instance, the right of decision about the continuance of an establishment as well as investment and personnel decisions represent the central zone of uncertainty for the employees.

Moreover the variably combined applications of control elements of the type of prestructuring, incentive and legitimation limit the possibility that partial interests can render themselves independent without hinderance in the process of restructuring. However, the control which the senior management or owner of an enterprise can exert over the restructuring process must always remain more or less imperfect and precarious. The reason, we would argue, is that the capacity of other actors to control specific zones of uncertainty cannot be eliminated without renouncing the necessary contributions of specialists and cooperation inputs which each major measure of restructuring depends on. The design of the labour process itself is also influenced by the control strategies even though the senior management's strategies have a rather indirect and sometimes unintended effect and in most cases they do not contain a detailed conception of the labour process.



## References

- Armstrong, P. (1986), Management control strategies and inter-professional competition: the cases of accountancy and personnel management, in: D. Knights/H. Willmott (eds.), *Managing the Labour Process*, Aldershot: Gower 1986, 19-43
- Baethge, M./H. Oberbeck (1986), *Zukunft der Angestellten. Neue Technologien und berufliche Perspektiven in Büro und Verwaltung*, Frankfurt: Campus
- Batstone, E./A. Ferner/M. Terry (1984), *Consent and Efficiency: Labour Relations and Management Strategy in the State Enterprise*, Oxford: Basil Blackwell
- Benz-Overhage, K./G. Brandt/Z. Papadimitriou (1982), Computer-Technologie im industriellen Arbeitsprozeß, in: *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, Sonderheft 24, 84-104
- Berger, U. (1984), *Wachstum und Rationalisierung der industriellen Dienstleistungsarbeit*, Frankfurt/New York: Campus
- Berger, U./C. Offe (1984), Das Rationalisierungsdilemma der Angestelltenarbeit, in: C. Offe (ed.), *'Arbeitsgesellschaft' - Strukturprobleme und Zukunftsperspektiven*, Frankfurt/New York: Campus, 271-290
- Brandt, G./G. Kündig/Z. Papadimitriou/J. Thomae (1978), *Computer und Arbeitsprozeß*, Frankfurt: Campus
- Braverman, H. (1974), *Labor and Monopoly Capital. The Degradation of Work in the Twentieth Century*, New York/London: Monthly Review Press
- Buchanan, D.A. (1986), Management objectives in technical change, in: D. Knights/H. Willmott (eds.), *Managing the Labour Process*, Aldershot: Gower, 67-84
- Burawoy, M. (1979), *Manufacturing Consent*, Chicago: University of Chicago Press
- Burawoy, M. (1978), Towards a Marxist theory of the labor process: Braverman and beyond, in: *Politics and Society* 3-4
- Crozier, M./E. Friedberg (1979), *Macht und Organisation. Die Zwänge kollektiven Handelns*, Berlin: Athenäum
- Czarniawska, B. (1983), Control in industrial organizations: concepts, issues, processes, IIVG/dp 83-211 discussion paper, Science Center Berlin
- Edwards, R. (1979), *Contested Terrain*, New York: Basic Books
- Etzioni, A. (1961), *A Comparative Analysis of Complex Organizations*, New York: Free Press

Flecker, J./A. Volst (1988), Kontrolle der Kontrolle. Formen und Folgen der Steuerung betrieblicher Rationalisierungsmaßnahmen, in: Österreichische Zeitschrift für Soziologie 2

Friedman, A. (1977), Industry and Labour, London: Macmillan

Goffman, E. (1959), The Presentation of Self in Everyday Life, New York: Doubleday

Herman, A. (1982), Conceptualizing control: Domination and hegemony in the capitalist labor process, in: The Insurgent Sociologist, Vol.XI(3): 7-22

Hyman, R. (1987), Strategy or structure: capital, labour and control, in: Work, Employment and Society 1 (1):25:55

Knights, D./H. Willmott/D. Collinson (1985), Job Redesign. Critical Perspectives on the Labour Process, Aldershot: Gower

Kern, H./M. Schumann (1984), Das Ende der Arbeitsteilung? Rationalisierung in der industriellen Produktion: Bestandsaufnahme, Trendbestimmung, München: Beck

Lane, C. (1987), Capital or culture? in: Work, Employment and Society 1 (1):56-70

Little, R. (1982), The Development of the Labour Process in Capitalist Societies, London: Heinemann

Mintzberg, H./D. Raisinghani/A. Théoret (1976), The structure of 'unstructured' decision processes, in: Administrative Science Quarterly, 21: 246-275

Piore, M./Ch. Sabel (1984), The Second Industrial Divide, New York: Basic Books

Rose, M./B. Jones (1985), Managerial strategy and trade union responses in work-reorganisation schemes at establishment level, in: D.Knights/H.Willmott/D.Collinson, Job Redesign, Aldershot: Gower

Schienstock, G./G. Aichholzer/R. Seltz (1986), Participation as a management strategy for coping with uncertainty in innovation processes, discussion paper, Institute for Advanced Studies, Vienna

Schienstock, G. (1975), Organisation innovativer Rollenkomplexe, Meisenheim a. Glahn

Schumann, M./E. Einemann/Ch. Siebel-Rebell/K. Wittemann (1982), Rationalisierung, Krise, Arbeiter. Eine empirische Untersuchung der Industrialisierung auf der Werft, Frankfurt

Sohn-Rethel, A. (1972), Die ökonomische Doppelnatur des Spätkapitalismus, Darmstadt

Streeck, W. (1987), The uncertainties of management in the management of uncertainty: employers, labor relations and industrial adjustments in the 1980s, in: Work, Employment and Society, 1(3): 281-308

Teulings, W.M. (1986), Managerial labour processes in organized capitalism: the power of corporate management and the powerlessness of the manager, in: D.Knights/H.Willmott (eds.), Managing the Labour Process, Aldershot: Gower

Thompson, P. (1983), The Nature of Work, London: Macmillan

Weltz, F./V. Lullies (1984), Das Konzept der innerbetrieblichen Handlungskonstellation als Instrument der Analyse von Rationalisierungsprozessen in der Verwaltung, in: Leviathan Sonderheft 5, Opladen

Wilkinson, B. (1983), The Shopfloor Politics of New Technology, London: Heinemann