

Organizational and National Cultures: Some Observations on the Basis of a French-Italian-German Study of Computerization Processes¹

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Abstract: Despite the importance of trust and culture for organizational forms of coordination, it is not very clear what organizational culture is and how it is influenced by national cultures of work and management. On the basis of an French-Italian-German study three different approaches are discussed: A "culture-free" approach points to the impact of structural factors on organizations competing in an increasingly globalized environment. The view that organizational culture is shaped by national institutions highlights the role of training systems, industrial relations, and national laws. A constructivist approach privileges the active role of individuals in creating and re-defining the meanings attributed to words, gestures, or artifacts; culture is less an "iron cage" determining individual behavior than a "tool kit" for the construction of patterns of perception and behavior.

The economic success of Japanese and other East Asian companies has stimulated growing interest in the impact of organizational and national culture on organizational effectiveness. East Asian companies have benefited, not only from favorable national industrial policies and the relative advantage of industrial latecomers, but also from a higher workforce homogeneity and apparently higher degrees of commitment, normative integration and consensus than are common in Western societies (cf. Deal and Kennedy 1982). More generally, it may be that, in post-industrial economies, economic success depends to a greater extent on cultural factors than on the availability of advanced technologies or products. After the abandonment (or transformation) of classical mass production concepts and the shift to various forms of flexible specialization (Piore and Sabel 1984) and flexible quality production (Streck and Sorge 1986), organizations must deal with the increased uncertainties resulting from shorter product cycles and production series, increasing demands for quality and flexibility, and decreasing inventories and throughput times. Successful handling of such uncertainties may require forms of internal coordination other than the classical bureaucratic-hierarchical-taylorist patterns based on the creation of organizational routines ("decision programs") and the close supervision of work behavior (cf. March and Simon 1958; Edwards 1979; Heydebrand 1989, 1990). When the complexity of organizational tasks increases, the use of consensus- and commitment-based

¹ This article is based on a study of the development and use of computerized production planning and control systems in eleven French, German, and Italian clothing and electronics manufacturing companies. Our data was obtained from 145 interviews with production planners and controllers, foremen, systems developers, union shop stewards, and top management executives. The field work was done by nationally mixed teams from the University of Bologna (Luigi Benedetti, Michele La Rosa), the University of Bielefeld (Gert Schmidt, who directed the research project, Stefan Heiner, and myself), the University of Paris (Pierre Dubois, Solange Montagné-Villette) and the IRES (institute for socio-economic research) of Turin (Giancarlo Cerruti, Maura Franchi). Some of our results have been previously published in a common reader edited by Heidenreich (1993).

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coordination of responsibly autonomous employees (cf. Friedman 1977) may be "technically" superior to the imposition of externally devised decision-programming. This leads to an advantage of organizations which can rely on societal institutions and cultures favoring a higher degree of social integration on the organizational level.

The reduction of "transaction costs" between organizations and their members by the creation of high-trust relations (Fox 1974) and adhocracies (Mintzberg 1983) -- which may be at the center of post-industrial forms of work organization (Heydebrand 1989) -- finds a parallel in the increasing importance of forms of interorganizational coordination that occupy a middle ground between the poles of "hierarchy" and "market." Discussion of relational contracting (Williamson 1975, 1985), clans (Ouchi 1980), quasifirms (Eccles 1981), industrial districts, and support networks (Hollingsworth 1991) is largely discussion of trust-based forms of interorganizational coordination (cf. Thompson et al. 1991).

Despite the increasingly acknowledged importance of trust and culture for intra- and interorganizational forms of coordination, there is still a consistent lack of theoretical conceptualizations of organizational culture. According to one view, organizational culture can be strategically implemented by management, through the use, for example, of quality circles, efforts to create a "corporate identity", or other forms of "management by culture". Under a second approach, organizational culture is defined by national culture -- the basic assumptions of all the members of a specific society, created in historical processes and struggles that formed the society and its institutions. Conceptualized in this fashion, culture cannot simply be exported to organizations in another society. A third view, opposed to both the "strategic" and the "holistic" approaches to organizational culture, treats "cultural variables" as largely irrelevant to the analysis of organizations. This approach, at present the dominant one in the sociology of organizations, regards organizations as open, natural systems (cf. Crozier and Friedberg 1980; Scott 1981). Organizational forms and processes are seen as the result of exchange, negotiation, and power relations among organization members - without taking into account their patterns of perception, interpretation, and behavior.

In this paper, the empirical results of a French-Italian-German study on computerization processes in the production control departments of eleven clothing and electronics companies are used to discuss the explanatory force and the limits of three different theoretical approaches to the impact of national culture on organizational structures and cultures -- approaches which underlie many of the cross-national studies of organizations undertaken since the 1970's in several Western European countries, primarily France, Great Britain, Germany and Italy (e.g. Crozier 1964, Lutz 1976, Gallie 1978, Sorge and Warner 1986, Maurice et al. 1986, Jürgens et al. 1989, Lane 1989, Heidenreich 1990, Whitley 1991, Heidenreich and Schmidt 1991). They may be summarized as follows:

1. The first approach views national culture as a variable whose additional explanatory power to explain organizational structure can be neglected in comparison to other "contingencies" (cf. Hickson et al. 1981).

2. In the second perspective, national patterns of organizational structure and commitment-based forms of coordination are explained by nationwide institutions, such as the system of industrial relations or educational and vocational training systems. These institutions are regarded as materialized, objectivized forms of national culture (cf. Child 1981 and Douglas 1986).

3. Thirdly, national culture can be regarded as a "toolkit" (Swidler 1986) or a "garbage can" (Cohen et. al. 1980) of more or less unconscious interpretations of the world which are used by culturally embedded, but not culturally determined, individuals in shaping their actions,

creating and recreating organizational structures and cultures. This view has been greatly influenced by anthropological ideas (cf., for example, Geertz 1973).

The Culture-free Thesis of Organizational Change

Most theories of organizational change are variants of what I have called the "culture-free" approach. Early examples include Marx's identification of a trend toward large, mechanized factories, Weber's discussion of the development of bureaucracies, and the "logic of industrialization" perspective (Harbison and Myers 1959). A more recent, and more cautious, version of the culture-free thesis no longer rejects the role of culture altogether, but argues that its explanatory power is low in comparison with contingent factors (such as organizational size, size of parent organization, dependence, and operations technology) in explaining the degree of formalization, functional specialization and centralization (Hickson et al. 1981). The culture-free perspective is the "natural" approach to culture, because culture refers to the "basic assumptions" (Schein 1984) of social actors, their commonsense knowledge, their everyday perceptions of the world they live in. These interpretations, which are implicated in every social interaction, are generally unquestioned, and thus culture is normally taken for granted. In the sociology of organizations, supposed trends like the growing importance of flexibility, the shift to flexible forms of specialization (Piore and Sabel 1984) or the move towards "new production concepts" (Kern and Schumann 1984) are usually identified without reference to specific cultural or societal contexts, and explained instead by increasingly global patterns of production, competition, distribution and communication.

In our study, we were able to identify a number of patterns of organizational change relating to the computerization of production control processes that crossed national cultural boundaries. In both the electronics and garment industries, product cycles, "time to market," and delivery times are becoming shorter, and production lots and internal inventories are decreasing. Companies in both industries rely heavily on multiple, and often foreign-based, production facilities; the resulting logistical complications require highly sophisticated production control systems. In comparison with earlier production-control systems, the new, computerized systems are quite similar across national boundaries: they are dialogue-oriented, on-line-systems mostly used for the organization and monitoring of raw material and production flows (but not for the exact planning of production capacities). Employees in production planning and control departments, purchasing departments, and warehouses, and sometimes even foremen, use these decentralized systems directly, without the intermediation of data-typists. In the electronics companies, in particular, new information and communication (IaC) systems have replaced batch-oriented scheduling systems which had been used primarily within computer departments (on the basis of formulas and schedules prepared by other departments).

Additional patterns that were common across nations involved the interdepartmental, "systemic" use of the new information systems. In most companies, a variety of organizational subgroups -- such as the sales department, the material requirements planning and controlling department, the several production departments, and numerous warehouses -- all used the same IaC system. In such circumstances, the process of system development and implementation generally became highly politicized, with each subgroup pressing for a production control design related to its specific tasks.² Other problems encountered in developing, introducing and

² For example, in one company management sought to reduce costs by reducing inventories of raw materials. The unintended result was a dramatic increase of missing parts needed for production, thus aggravating the coordination tasks of the foremen. The foremen then pressed management for a further

using such companywide production control systems were also quite similar (although the solutions ultimately adopted revealed national differences, as will be shown below). None of the companies was able to use a standardized software package; all of the systems required a yearlong process of adaptation to the specific needs, interests and organizational customs and practices of each enterprise. Given their high degree of uncertainty and indeterminacy, these adaptation processes were accompanied by highly politicized power and exchange relationships. A final cross-national pattern was the nonhierarchical structure of project groups responsible for system development and implementation. Employees involved in these groups sought to develop a shared conception of the information system by communicating directly across department boundaries and outside traditional hierarchical channels of command and control.

In sum, we found evidence supporting the culture-free approach to organizational change in the cross-national similarity of (1) organizational requirements such as the need for higher flexibility and a higher transparency of production flows, (2) technical and organizational characteristics of the new information systems such as their "on-line" quality, their capacity for direct, decentralized use by production and production control employees, and their ability to transmit a more detailed and updated model of production and information flows, and (3) the social organization of the system development and implementation process, which was characterized by openness, indeterminacy, and the absence of a proved "one best way," an emphasis on bargaining and negotiation, and nonhierarchical forms of coordination.

But the limits of the culture-free perspective are clearly demonstrated by the existence of nation-specific characteristics of the computerization process. We examined two dimensions of system design and implementation (see figure 1): whether a "top-down" or a "bottom-up" strategy was used, and whether the relevant decisions were unilaterally taken by just one actor (either the organizational and data processing department or the production managers) or shaped in bargaining and exchange processes between different groups of actors³. National patterns with respect to these dimensions clearly emerged in both the garment and electronics companies.

The French companies typically followed a strongly centralized, top-down approach involving highly generalized and uniform rules and routines. This central planning created problems for local managers, such as missing parts, insufficiently integrated and outdated data bases, and imperfect correspondence between highly formalized planning routines and the specific requirements of local factories. As a result, in all three of our cases, local production controllers and production managers developed "unofficial" planning instruments (sometimes handwritten schedules, sometimes isolated, PC-based calculation and monitoring programs). The disadvantages of such a disconnected system included the costs of double entry of data, the increased risk of incorrect data-entry, and an enormous extra charge for keeping the data up-to-

reconsideration of production planning design.

³ In monocentric, centralized forms of production control, homogeneous production plans and planning methods are imposed by a central computer and production planning department, in decentralized, monocentric forms of production control the foremen retain the essential role in determining the job order, the capacity planning etc.. In polycentric, contextual forms, production control plans result from negotiation, communication and exchange among the various local production and production control units and the central department. The central department defines general production control methods and production schedules (thus guaranteeing a companywide homogeneity of production plans and data bases), while local production controllers and foremen are responsible for optimizing decisions locally. In decentralized forms of context control even the companywide production control methods result from bargaining processes between different production departments, local production control departments and central production planning units.

date.⁴ Nevertheless, very often the French employees preferred these informal ways of production control to maintain their autonomy towards the central departments - refusing sometimes even offers to participate more actively in the development of new IaC-systems.

In Italy, a similar gap between the processes of systems development and of systems use emerged. In one electronics company, for example, a four-person project group worked out the design of an automated assembly line within a few months -- without the participation of the production managers or the production line foremen. As in France, the system developers' failure to take into account the users' ideas and requirements led to a system inherently limited by abstract control concepts. In contrast to the French situation, however, the Italian system developers were unable to impose their design on the production departments; experience-based, locally optimizing decisions still remained the most important and officially recognized forms of production control, while the local French managers had to accept the new general production methods modifying them only in an informal manner. Although there were no open conflicts, the production departments the Italian computer plant effectively blocked the implementation of the system through frequent work stoppages and a year-long period of minimal use. Similarly, in the two clothing companies studied, the production departments did not really use the new, highly sophisticated production control systems; the systems served mainly to impress new owners and clients. Production controllers preferred to rely on hand-written cards and documents and on telephone calls to their local subcontractors. This parallelism (or side-by-side existence) of computerized ex-ante and experience-based production control systems (contrasted with their harsh opposition in France) was typical of all four Italian companies.

⁴ This French pattern of double planning structures resembles the bureaucratic vicious circle reconstructed by Michel Crozier (1964) in his study of the interdependence of formalization and informalization processes.

Figure 1: *The Production Control Concepts in Eleven Italian, French, and German Enterprises in the Clothing and Electronics Industry*

<p>Foreman control</p> <p>C2I</p> <p>C1I</p> <p>E2I</p> <p>Monocentric forms of production control</p>	<p>Decentralized forms of production control</p>	<p>Decentralized forms of context control</p> <p>E1I</p> <p>E2G</p> <p>E1G</p> <p>C1G</p> <p>Polycentric forms of production control</p>
<p>C1F</p> <p>C2G</p> <p>C2F</p> <p>Global, deterministic forms of production control</p>	<p>Centralized forms of control</p>	<p>E1F</p> <p>Centralized forms of context control</p>

Explications: "C1G" refers to the first German enterprise in the clothing sector; "E2I" to the second Italian electronics (computer) company etc.

We observed a different pattern in the four German companies in our sample. At the beginning of the system development process, top management and EDP departments typically relied, as did their French and Italian counterparts, on strict technocratic, top-down strategies.⁵

⁵ The persistence of this pattern explains the "exceptional" position of the company labelled C1G (see Figure 1). The son of the founder pushed through his technocratic vision of a completely automated production control system "with the force of a tank making his way through the organization despite all the

As in France and Italy, this strategy very soon reached its limits; it could not handle the day-to-day variations of highly complex, flexible production requirements. German foremen and production managers encountered all the failings of a system based on abstract production control concepts: parts were missing all the time, it was impossible to adhere to planned production schedules due to specific, situational requirements (such as broken machines, missing workers or parts, and urgent commands), and the data in the planning systems were frequently out-of-date or incorrect. However, in contrast to the French and Italian cases, where the foremen and production managers developed their own, parallel control concepts (either in a subordinate, clandestine way as in France, or in an informal, but openly tolerated form, as in Italy), in Germany the production managers and foremen were able to become participants in the organizational system development process. German production managers and foremen generally possessed greater technical competence and experience than their French and Italian counterparts (due to a more systematic professional training), which gave them a stronger bargaining position. They succeeded in articulating and defending their interpretation of production requirements and their perception of the challenges they faced. In formal or informal ways, in project groups or ad hoc discussions among production managers, production controllers, and systems developers, a kind of public space was created in which the relevant actors could express their visions of the system to be developed, in the end creating a relatively homogeneous, consensually shared concept which was incorporated into the algorithms and data structures of the production planning and control system.

These national variations can be partially explained, in a culture-free manner, on the basis of differences in industry and correlated differences in company size. Electronics companies in all three countries which were typically large, generally (with the exception of E2I; cf. figure 1) chose more structured forms of user participation (such as project groups) than did the smaller garment companies, where participative or communicative forms of systems development depended on the existence of a middle manager who was interested in and able to involve different user groups in the development and implementation process (and in C1G, the only exception - cf. figure 1 - this involvement was facilitated by a government-sponsored "humanization of work" project). One explanation (besides the paternalistic management structures in the clothing industry) for the difference between the two industries could rest on the electronics companies' generally greater experience with internal computer systems development and with user participation, while the clothing companies had typically relied on external software firms. The costs of user participation are generally quite obvious in terms of the organization's market-coordinated relations with an external software company -- each hour of supplementary work must be paid for -- while the benefits (the avoidance of long, frustrating and expensive adaptation processes and the creation of systems which are really used) are often not evident in the short run. A software firm that openly declared, at the beginning, all the projected costs of participative processes would never be accepted for the job, while the later adjustments to adapt a system can be disguised as "maintenance costs". An internal computer department, on the other hand, is less obliged to justify the costs of user participation and can therefore more easily follow a participative approach.

Although some of the national variation in organizational structure and strategy can be explained by a culture-free contingency approach, the national differences in preference for

obstacles met," as his father put it. But even this forcefully imposed design was effectively transformed through a participative-communicative process. The department manager who took over responsibility for employee training and the adaptation of the information system to specific task requirements involved her colleagues in the computerization process and defended their views against the software house in charge of system development.

global/centralized or situational/local production control cannot be explained by different task-specific environments (cf. the vertical dimension in figure 1). Most of the companies operate under similar economic, political, and technical conditions. Their products compete on the same highly competitive international markets; they are subject to similar industrial policies; and they use comparable production technologies. There is still a need for a cultural explanation.

Institutional Explanations of National Patterns of Organizational Change

The explanation of national variations in the organizational use of labor and technology is the central aim of the above-mentioned cross-national studies. If national differences can be demonstrated despite basic similarities in organizations' technological, economic and political environments, they must be explained on the basis of other socio-cultural factors. Given the overwhelming variety and heterogeneity of norms and values registered in survey studies, the crucial question is which aspects of a culture really matter. Most cross-national studies have opted for a careful limitation of the relevant explanatory variables. They concentrate on institutions, such as systems of industrial relations (Maurice et al. 1986), of general education or vocational training (Lutz 1976), or of industrial policy (Hamilton and Biggart 1988). The theoretical argument justifying this limitation is articulated by Child (1981, p. 329) as follows:⁶

"... in attempting to isolate what is intrinsically cultural, it is necessary to judge which values and norms are historically embedded in a nation's social and institutional development. Reference to history also indicates a possible alternative to the sampling of currently held attitudes and values among national populations as a means of isolating distinctive cultural characteristics. For one of the main emphases in anthropological work is that culture is transmitted from generation to generation and for this reason has a persistent character. It should therefore be possible to isolate as well as account for dominant values in a society by reference to the historical development of its political, economic and other institutions, and also by reference to the manner in which key events and crises have been handled within the country."

National institutions that govern or influence organizational forms of cooperation and conflict are thus regarded as the result of past interest and legitimation struggles, as the cultural embodiment of lines of compromise reached in past conflicts and debates.

In our study, too, we observed the impact of institutions on observed national variations in computerization strategies. We found nationally specific relationships between aspects of organizational change and national systems of educational and vocational training and of industrial relations (including collective agreements, labor legislation, insurance systems, trade union organizations and employer associations). These "variables" are partially different from the "classical" institutional variables like national systems of industrial relations and professional training -- probably because our investigations took place at the borderline of white- and blue-collar segments of the work force and not within the traditional blue-collar segments.

⁶ In anthropology, the idea of the institutional basis for human action and thought has been put forward especially by Mary Douglas (with reference to the works of Emile Durkheim and Ludwik Fleck): "Durkheim and Fleck taught that each kind of community is a thought world, expressed in its own thought style, penetrating the minds of its members, defining their experience, and setting the poles of their moral understanding . . . For better or worse, individuals really do share their thoughts and they do to some extent harmonize their preferences, and they have no other way to make the big decisions except within the scope of institutions they build" (Douglas 1986, p. 128).

In Germany, the national vocational-training system was initially aimed primarily at blue-collar workers, but now about half of the apprentices are trained for white-collar positions. Apprentices undergo a period of "dual" training, typically three years in length, involving both a part-time study in a vocational or professional school and part-time work with an employer in the relevant field. Thus, apprentices acquire not only abstract knowledge, but also professional skills, norms, values, and patterns of behavior which can be put to immediate use in the workplace. Significant social esteem is accorded to the official certificate ("Facharbeiterbrief") awarded for completion of an apprenticeship. The holder of such a certificate is generally classified as a skilled worker, and thus obtains the corresponding pay level and status in the enterprise according to industry-wide collective agreements. The vocational certificate also opens the way to further professional training programs, which are credentialed by a foreman diploma ("Meisterbrief") or even a university degree ("Diplom-Ingenieur/Fachhochschule"). This apprenticeship is the most important form of initial professional or vocational training -- for both blue- and white-collar workers. Even with the expansion of higher education since the 1960's, about two thirds of each age-group begin their careers with an apprenticeship.

In France, there is a very close connection between level of academic education and status within an organizational hierarchy. In the absence of a developed vocational training system, emphasis is placed on mastery of abstract knowledge acquired through the educational system, while practical experience and applied knowledge are devalued. Socially recognized credentials are available only for abstract, theoretical knowledge, in the form of technical and university degrees. The low social recognition of applied knowledge is at least partially due to the fact that executive blue-collar jobs are mostly filled by employees who failed in early phases of their school career. Differences in levels of success in a highly selective school system, and differences in types of knowledge, deepen the cleavages between the occupational groups who design information systems and those who use the information systems in the production and production control departments.

In Italy, employees' status and responsibilities within organizations are largely unrelated to either academic education or formal vocational training. There are at least three reasons for this. First, due to the extreme heterogeneity of Italian schools, companies are reluctant to grant a nationwide, general recognition of educational diplomas or certificates. Second, a high youth unemployment rate makes it difficult for young employees to claim a higher classification than older, more experienced, but formally less qualified employees. Third, in small and medium-sized enterprises (which have employed an increasing proportion of the labor force since the 1970's) scholastic achievement and formal diplomas are less important than personal relationships and non-standardized, individual credentials and qualifications. In Italy, the meritocratic coupling of school diplomas and organizational status typical of French enterprises (and -- with reference to professional degrees -- of German ones as well) is lacking; scholastic qualifications have only a minor impact.

Why would national differences in the relationship between educational attainment and status within organizations lead to differences in the organizational forms and processes surrounding the introduction of new computer technology? It is characteristic of these technologies that the exploitation of their "systemic" capabilities depends to a considerable extent on the involvement of the users and their practical knowledge of the functioning of the organization. Therefore, a condition for successful implementation is an intense, open-ended cooperation among data processing departments, production planning and control services, and production lines. The integration of experience-based forms of knowledge and abstract, company-wide control methods of production control is a crucial issue for the success of the computerization process. This "problem of reference," located at the interface of production,

production control, and EDP and organization departments depends upon whether young, highly and abstractly qualified, white-collar production controllers and computer experts can cooperate with their older, formally less qualified, but experienced blue-collar colleagues in the production and production control departments.

In German firms, the development of production control systems that are closely adapted to the production process is facilitated by the presence of both employees with practical experience in production and white-collar employees with commercial or technical training. Both groups have experienced a similarly structured program of vocational training. Moreover, logistics and EDP experts cannot simply impose their abstract, theoretical knowledge on foremen and production controllers, whose practical, experience-based knowledge is also formally recognized and enjoys high social esteem. In contrast, in the three French firms investigated, a professional and social distance is maintained between the EDP and administrative departments, on the one hand, and the production control and production areas, on the other. This distance reflects the different types of knowledge -- abstract and general versus empirical and application-oriented (cf. Lutz and Veltz 1989) -- characteristic of French employees with higher and lower levels of education. In both German and French companies, the competition between younger and older employees leads to the mutual limitation of purely abstract and purely pragmatic methods of production planning and control. The integration of both logics into a unified, comprehensive and efficient information system is less likely in French than in German firms, however, because French employees are more inclined to choose strategies of separation and distinction (cf. Bourdieu 1984).

In the four Italian firms, there were no open power struggles and conflicts between the production, production control and systems development departments, but rather a parallel development of the two approaches to production control, resulting frequently in a year-long isolation of the new information technologies. Once the limitations of abstract, global production control became apparent -- when management realized that the support of the foremen was crucial -- an intense and informal cooperation sometimes developed. The difficulties in establishing cooperation between proponents of pragmatic and abstract approaches may be explained by the fact that in Italy there are no "modernized," institutionalized and socially accepted patterns of cooperation and behavior such as the crafts model in Germany. As a result, cooperation between the production, production control and systems development departments is not blocked by status hierarchies based on education, as it is in France, but neither is it facilitated by a vocational training system in which the majority of both white- and blue-collar employees participate, as it is in Germany. This "institutional" explanation of national patterns in production-control computerization processes can be completed by pointing to other institutionalized practices which also reflect national differences in relations between white- and blue-collar workers. For example, in each country, payment groups are based on different educational level. In Germany, white- and blue-collar workers participate in separate insurance systems and enjoy different legal rights, while in France and Italy the legal differences are less pronounced (there exists only a separate pension scheme for the French cadres). In France and Italy, cadres or quadri maintain separate unions, while in Germany they can be organized in the same industrial unions (the DAG, the only alternative outside the DGB-unions, is less important).

Our study illustrates the fruitfulness of an institutional approach which operationalizes culture as historically embedded in national institutions. However, two objections to this approach have been raised. The first critique accepts the use of specific institutions for the operationalization of culture, but argues that the national level is not the only relevant one for the study of institutions. The use of national institutions to operationalize culture may lead to an

overestimation of the internal coherence and consistency of national culture and a minimization of its internal cleavages. It may also promote an undue focus on nationally specific aspects of culture and obscure important transnational cultural elements.⁷ A more radical critique questions the premise that institutions shape organizational outcomes, and rejects the idea that culture is a kind of iron cage which determines individual behavior. According to this view, individual identities in societal institutions are seen as socially constructed, but social actors can always reformulate or even re-invent "traditions." Institutions can be used in new ways by actors facing new challenges, or can even be changed.

A Detraditionalized Concept of Culture and new Patterns of Social Inequality

From an anthropological perspective, culture and traditions are viewed as principally contingent constructions of present actors, bearing the traits of their actual interests and interpretations of the world.⁸ Institutionally "settled" cultural patterns like the system of industrial relations are repeatedly reinterpreted by actors facing new challenges or developing new frames of perception. Swidler proposes a concept of culture which takes into account Geertz's objections to the reification of culture as "super-organic" reality or its reduction to behavioral patterns or individual skills and knowledge. She offers "an image of culture as a 'tool kit' of symbols, stories, rituals, and world-views, which people may use in varying configurations to solve different kinds of problems" (Swidler 1986, p. 273). This concept has much in common with the "garbage can" model of organizational decision-making proposed by Cohen et al. (1980, p. 145).⁹ If we regard organizations as a type of encultured "garbage-cans," culture can no longer be viewed as either an internal or an external "variable" (Smircich 1983) or "a unified system that pushes action in a consistent direction" (Swidler 1986, p. 277). Instead, it must be seen as "a 'tool kit' or repertoire from which actors select different pieces for constructing lines of action" (Swidler 1986, p. 277). A culture is not a bundle of unchangeable patterns of interpretation and behavior (a kind of "iron cage" as Douglas (1986) seems to indicate) but a repertoire of symbolic structures which are socially constructed and reconstructed in meaningful interactions between ego and alter, as ego accepts, modifies, reinterprets or misinterprets the interpretations of alter.

⁷ Examples of this include a possible trend to worldwide uniform patterns of consumption, or groups such as "practising Christians, trade-union activists, or primary schoolteachers . . . [who] share at least some significant values which set them apart from other groups in each of their national societies yet unite each stratum across frontiers" (Rose 1985, p. 68).

⁸ In anthropology, culture is not regarded as a "supra-individual" sphere of values independent of social action or "brute patterns of behavioral events" (Geertz 1973, p. 11), nor as "psychological structures by means of which individuals or groups of individuals guide their behavior" (Geertz 1973, p. 11), but as "webs of significance" (p. 5) or "frames of interpretation" (p. 9), as "a stratified hierarchy of meaningful structures in which twitches, winks, fake-winks, parodies, rehearsals of parodies are produced, perceived, and interpreted without which they would not . . . in fact exist, no matter what anyone did or didn't with his eyelids" (Geertz 1973, p. 7).

⁹ For example, Cohen et al. (1980) make the following statement: "Although organizations can often be viewed conveniently as vehicles for solving well-defined problems or structures within which conflict is resolved through bargaining, they also provide sets of procedures through which participants arrive at an interpretation of what they are doing and what they have done while in the process of doing it. From this point of view, an organization is a collection of choices looking for problems, issues and feelings looking for decision situations in which they might be aired, solutions looking for issues to which they might be the answer, and decision makers looking for work."

Nevertheless, the meaning individuals impose upon experience (Geertz 1973, p. 45) will generally be influenced by the significance structures of the community. Individuals typically assign the same meanings to words, behaviors, artifacts, or gestures as do family, friends, neighbors and teachers. The "culture" of an individual is not the result of a rational, strategic choice dependent upon the given situation and the interests an actor may have in interpreting a situation in a specific way. Under what conditions, then, do individuals consciously question or even modify their common-sense, taken-for-granted interpretations of the world? The process may, perhaps, be analogous to the logic of "scientific revolutions" (cf. Kuhn 1962): as long as "business as usual" may be continued on the basis of established patterns of interpretation and behavior, individuals will not change the meanings they give to day-to-day events.

Habitual frames of perception may be altered under three conditions: a change in the interpretive schemes of relevant peer groups; a fundamental threat to an individual's or a group's identity if cultural patterns are not changed; or an increased individualization and pluralization of social life, increasing the diversity of available interpretations of the world. If normative integration weakens at the level of direct interaction (for example, with family, neighbors, or peer group members), and if the number of available and visible alternative interpretive patterns increases (through mass media, immigration, tourism, scientific communication or other means of cross-cultural exchange) the force of conventional schemes of interpretations is reduced. It becomes easier for individuals to be aware of and to select among several different interpretations of a given situation. Therefore, the globalization of culture is not characterized by a worldwide increase in cultural homogeneity ("the Coca-Cola and McDonald's culture") but by an increased awareness of deliberately chosen and defended individual or group identities (cf. Featherstone 1990). What is increased is not cultural sameness, but awareness of alternative cultural systems; thus, globalization and "regionalization" or local particularism (in the sense of a strengthened consciousness of one's own particular culture) are two aspects of the same process (cf. Korff 1991).

Our study provides some empirical evidence for the explanatory value of such a "constructivist" conception of culture. We start our analysis with the changing role of national industrial relations systems - institutions which have (as has been frequently demonstrated) an extraordinarily strong impact on organizational processes (cf. Gallie 1978; Maurice et al. 1986; Streeck 1988).

A common pattern in nearly all of the eleven companies studied was the extremely limited impact of trade unions and shop stewards on the computerization process. This uniformity is surprising, because of the significant differences among the institutional forms of collective representation among the three countries involved. For example, the regulatory framework surrounding union activities is extensive and detailed in Germany, but relatively informal in France and Italy; company-based union shops maintain close ties to the national organization in France and Italy, but have an autonomous legal position in Germany; longstanding traditions of industrial relations are cooperative in Germany, informal in small and medium-sized Italian enterprises, and conflictual in French and large Italian companies. Despite these differences, union representatives in all three countries had only a marginal impact on the development and use of computerized production planning systems. In general, they were not informed in advance, they did not press for the thorough training of users, and they did not request "ergonomic" terminals and workplaces. Union representatives were unable to prevent the development of new lines of social segmentation (especially between old and young, skilled and unskilled employees), and they did not alleviate the increased employee stress related to the implementation and use of production planning systems. They did not press management to avoid layoffs.

Our hypothesis is that, in all three countries, the unions could not overcome their traditional concentration on blue-collar issues such as wage levels, employment stability, shorter working hours, and piece-work rates, and their traditional use of formalized channels of interest representation such as collective bargaining between the official agents of "management" and "labor." None of the different institutional forms of collective representation which had historically evolved in Germany, France, and Italy were able to represent the interests of new actors (white-collar workers), take up new issues (stress, training, control, segmentation), or utilize new channels of communication dominant in the white-collar segment of the work force (direct, non-representative, informal and often horizontal or "diagonal" channels) (cf. Cerruti and Heidenreich 1993).

We did not observe attempts by management to take advantage of union weakness through strategies designed to exclude unions from, or reduce their influence on, the computerization process. Management was more interested in strengthening and using the cooperative aspects of industrial relations -- even in Italy, where management thus helped to redefine the traditionally conflictual "industrial relations culture." In Germany, in particular, this emphasis led to the intensification of traditionally cooperative relations. German "Betriebsräte" (a kind of shop steward) generally obtained all the information they desired, even without insisting on their legally guaranteed information rights; if they opposed the storage of data related to individual workers, these data were not stored; if they insisted on appropriate training, their demands were met; if they insisted, at the instigation of the national union, on companywide agreements concerning the introduction of new technologies, these agreements were concluded (in three of the four companies studied), although they later fell into disuse. This cooperative attitude cannot be explained as simply the continuation of traditional forms of industrial relations, however. The shop stewards did not actively participate in the computerization process, often due to their own reluctance to become involved in this new, unknown field. Instead of responding to union initiatives, management tried to anticipate and avoid union complaints -- especially by maintaining an active information policy and by avoiding the storage of individual data. The non-interference of unions was crucial for employee acceptance of the new information systems. Although employees normally did not rely on the union to represent their interests, they viewed the shop stewards as a collective security net, there to protect them if their usual, more individualistic strategies failed.

In the three small and medium-sized Italian factories (with 150, 270 and 1000 employees at the sites investigated), relations between management and employees were traditionally less conflictual than in the large northern Italian firms. The informal, often patriarchal, management style typical of smaller Italian enterprises coexisted, in some firms, with a relatively strong union bargaining power. In the clothing enterprise C1I and the computer factory E2I, about 50% and 40% of the work force, respectively, was unionized; however, union representatives played a relatively passive role with respect to the production control computerization process, accepting the informal negotiation patterns in those firms. In the computer company E1I, on the other hand, the year-long introduction process was conflictual, but this was less the result of struggles between management and labor than of conflicts among the three unions representing company employees. Management was quicker to accede to most union proposals than were the other unions. In the same company, we observed a traditional cultural pattern being used in a new, surprising way. The left-wing union CGIL accepted, and defended against the other unions, a proposal to tie a considerable portion of assembly line workers' pay to product quality and the degree of utilization of the computer-controlled

production line, thus making pay dependent upon mistakes that were traditionally seen as management problems.¹⁰

The willingness of the CGIL shop stewards (and their national organization, which also had to sign the contract) to accept responsibility even for unpopular decisions may be a consequence of the class-oriented vision of the CGIL. Faced with strong and ideologized unions, management found that its best option was to take seriously the communist vision of a more rational model of social organization. Management was able to use this vision strategically as a basis for improving product quality and the utilization rate of the new, computerized assembly line. Thus, an element of the traditional conflictual industrial culture was used as a "tool" for the construction of a more cooperative one.

The most important examples of a nontraditional, individualized use of cultural patterns were nearly "invisible," taking place as part of open-ended, non-hierarchical and politicized computerization processes. In project groups and other "open" bargaining arenas, traditional status differences and formally certified qualifications were less important than the ability to communicate, to structure problems, to persuade, and to reach agreement. Especially for young employees with a higher education, this opened new opportunities to demonstrate to their older colleagues (who generally had a higher hierarchical status, but a lower education) their personal and professional abilities. Because of the openness and indeterminacy of the political processes related to computerization, it was possible for these employees to define their own tasks and create new channels for upward mobility. For example, some production controllers -- due to their close involvement in the development of information systems -- became experts in the practical analysis of organizational and informational systems, knowing how to transform practical knowledge into algorithms and data structures. In small and medium-sized companies, in particular, it was often the case that one such expert, often young, enthusiastic, and communicative, who had been socialized within the company and who was intimately acquainted with its problems and power structures, became the key person for the organization of computerization processes. Members of project groups were sometimes able to move to different departments (e.g., from production to production management), due to their new contacts. This created "diagonal" chains of mobility across department boundaries, reducing the importance of traditional vertical mobility patterns and employees' dependence on their immediate supervisors. In sum, computerization processes are often associated with a decrease in the importance of hierarchical, professional and status-based social divisions and an increase in the importance of individuals' active use of their individual social and cultural competences.¹¹

¹⁰ This unpopular decision was not unanimously accepted by the workers or the other unions, as the shop steward of another union explained to us: "The question was whether we should feel responsible for the use of the facilities . . . The premium mechanism of pay which was introduced with this contract is completely different from the forms of pay we were accustomed to -- that is, piece work. And some of the workers didn't understand the premium mechanism. Nothing is based on individual labor anymore, even the maintenance people and the warehouse workers have been made part of the premium system. This means that the factory worker says to himself: 'I have to work for the warehouse workers, those in quality control, the maintenance people, etc., as well. In the past, when I produced ten machines it was ten machines for the piece-work pay system. Now I only know how much I'm going to earn when I know how many pieces have been accepted by quality control, and how many people all told were in my group.' The workers and the unions had considerable mistrust for such a system."

¹¹ This may produce different forms of social stratification which are based more on the individual "habitus" (socially constructed, internalized forms of practices and tastes) (Bourdieu 1984) than on class position, professional or hierarchical status, or family background, resulting in a new type of cultural (not only utilitarian) individualism (cf. Bourdieu 1984). While this does not imply that educational credentials and job titles become less important, their importance, as forms of "institutionalized cultural capital"

Our findings on the decreasing role of traditional bases of social inequality within corporations (such as professions, departments, hierarchical status, job titles and educational degrees) thus may point to a modernized (or perhaps post-modern) form of social structure (cf. Clegg 1990). In this type of social structure, social position cannot be inherited or transmitted as a result of the economic, cultural and social "capital" possessed by an individual's family. Nor is it determined by the level of an individual's general education or professional training. Instead, social position will become more and more the consequence of individual biographic choices at each stage of the professional career and the personal life-cycle. Such processes of individualization and "culturalization" have been described as a "modernization of the cultural reproduction of the class structure of advanced industrial societies" (Eder 1989, p. 390). While social inequality will persist, it will be increasingly determined by individual biographical choices, while ascriptive status characteristics will play a decreasing, or differently mediated, role.¹²

Conclusion

What does this mean for the discussion of organizational change? First of all, in modern Western countries, companies cannot treat national culture as an external resource which can serve as a functional substitute for bureaucratic incentives, and which is available to "enhance the ideological and cultural control over motivation, socialization, and other aspects of human resource management such as fostering commitment, compliance, cooperation, effort, problem-solving behavior on behalf of the organization, performance orientation, and innovativeness" (Heydebrand 1989, p. 347). A use of "culture" as an external variable may be possible in Japan and other East-Asian societies where goodwill or benevolence is simply "a duty. Full stop" (Dore 1983, p. 470) and where the normative requirements of clan-like forms of organization, such as reciprocity, legitimate authority, common values and beliefs (cf. Ouchi 1980, p. 137) can still be treated as legitimate, unquestioned elements of national culture.

This also implies a critique of the institutional definition of culture. Institutional explanations of national patterns of organizational change are simply a more sophisticated form of operationalizing national culture as an external variable (Smircich 1983), by analytically disaggregating it into a bundle of relatively stable institutional patterns and practices.

Modern societies seem to be characterized by the progressive erosion of external sources of legitimation and normative integration; the "non-contractual elements of contracts" (Durkheim) must increasingly be produced by the contractors themselves. Due to an increased need for flexibility and the limits of "low-trust relations" and bureaucratic forms of integration, organizations are experiencing an increasing demand for policies that actively promote social integration. Management literature insists, sometimes in a somewhat voluntarist perspective, on

(Bourdieu), lies in their impact on the internalized cultural capital of individuals: their personal, albeit socially constructed, skills, competences, and qualifications.

¹² Bellah et al. (1991, p. 24-5) illustrate that this "modernization" of social stratification may lead to an intensification of struggles for upward mobility, to the destruction of underclass (or proletarian) milieus and to the demoralisation of the "losers" who cannot explain their deprived positions by open, not only statistical forms of discrimination: "The great burst of freedom made possible by open housing and antidiscrimination laws found black Americans by the millions wanting to leave overcrowded, decaying urban ghettos and poorly rewarded occupations. As the fortunate and determined entered middle-class neighborhoods and middle-class occupations, they left behind people unable to get a toehold in the labor market, for at the same time industrial jobs were drying up in inner cities. The isolation and demoralization of an 'underclass' had begun."

the necessity of "management by culture" (e.g., Peters and Waterman 1982; Peters 1991; Ott 1989). At this point, it is not clear whether a corporate culture (which is more than letterheads, some expensive advertisements or an employee newsletter) can really be created, modified or maintained by top management or by human resources departments. Rather than attempting to impose uniformity on the diversified, culturally embedded interpretations and behavioral patterns of employees, management could follow a more promising approach by limiting its focus to the definition and strategic modification of relatively autonomous organizational arenas. Management can only attempt to shape the context for the autonomous, culturally embedded strategies of employees in such a way that the enterprise will survive in an increasingly turbulent environment. That is exactly what is happening in project groups: managers try to understand and evaluate the outcomes of these groups without interfering with the open, indeterminate processes of negotiation and re-interpretation taking place within them.

It can be concluded that the three different approaches to culture discussed here are useful for the discovery and interpretation of different empirical results. The choice of a "culture-free" approach to computerization processes points to the impact of international structural factors on organizations competing in an increasingly globalized environment. From this perspective, we observed a number of common patterns of organizational change, such as an increasing demand for flexibility, increasing use of computer-mediated forms of communication and control, and increasing reliance on contingent, open, and indeterminate political processes. This approach can only partially explain the existence of different national patterns of organizational change, however, and it is not helpful in accounting for the specific interests, strategies and practices chosen, or privileged, by organization members in specific social and cultural contexts.

The view that organizational culture is shaped by (generally national) external institutions tends to highlight the role of educational and professional training systems, traditions of industrial relations, national laws, and insurance systems. This approach allows the analytical disaggregation of "national cultures." The limits of such an institutional approach become apparent when organizations and their members use institutionalized ideas and practices in new, non-conventional ways, thus re-defining and recreating the "culture" which is supposed to be embedded in institutions.

A constructivist approach privileges the active role of individuals in using, creating and re-defining the meanings attributed to words, gestures, artifacts or behavior. It points to the dynamic relationship between organizations and their societal context; culture is less an "iron cage" determining individual behavior than a "tool kit" or "garbage can" an individual uses for constructing patterns of perception and behavior. If such a "detraditionalized" use of culture prevails, new forms of social inequality and stratification may arise. These new forms are no longer the result of socioeconomic class or ascribed status (kinship, race, ethnicity, gender and even educational and professional credentials which are -- as institutionalized forms of cultural capital -- relatively independent of actual competences and abilities), but are increasingly the consequence of the more or less conscious strategies of culturally embedded individuals who are increasingly responsible for their successes and failures, despite the persistence of statistical discrimination. Managers confronted with such pluralistic, individualized organizational cultures can only hope to arrange the context in a way which allows the continuous (sometimes computer-based) control of organizational performance, but they must abandon the vision of an integrated, homogeneous "corporate culture" or the hope of a new "one best way." Neither the increasingly indeterminate, flexible task structures nor the more educated, qualified and self-conscious work force accustomed to making their own choices (and to taking the responsibility

for them) will facilitate a reliance on new, "culturally embedded" versions of the old top-down forms of organizational coordination.

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