



NEW MANAGEMENT FORMS FOR THE KNOWLEDGE ECONOMY ? HRM IN THE CONTEXT OF TEAMWORK AND PARTICIPATION

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ABSTRACT

Many firms in America and in the world are currently changing their work organization by creating teams of workers. Teamwork is regarded as an excellent way to make the production process more flexible, hence, an excellent way to develop what is generally described as organizational flexibility. A large number of firms are developing diverse forms of participation or consultation which, however, do not depart from traditional ways of organizing workers in groups. In this paper, we will first present a number of theoretical and contextual elements on the introduction of teamwork and participation in organizations. We will then present the results of a qualitative study of teamwork conducted in three firms that have adopted this form of work organization.¹

Introduction

Teamwork figures prominently among the numerous changes that have occurred in work organization in the 1990s. The adoption of teamwork by North American firms is a concrete expression of the transformations that have shaken contemporary firms, and its popularity is confirmed all the more so because this system is associated with the most successful firms (Roy, 1999).

Because teamwork can be implemented in a variety of ways, it is often associated with an in-depth transformation of Taylorism provoked by the crisis of work, new forms of competition and new technologies (Bélanger, Grant and Lévesque, 1994). On the one hand, firms are changing their work organization in order to adapt to the new competition and thus satisfy new demands; and, on the other hand, they are beginning, in certain cases, due to the technological changes which call for collaborative work, to implement a model of organization that is based on team activities and multiskilled, autonomous groups instead of on individualized jobs.

These changes in production systems show that it is no longer the efficiency of partial and specialized operations that counts, but the efficiency of the link between the various operations closely related to employees' learning capacity, job redesign, a new communication activity, and the re-ordering of a whole sequence of events (Veltz and Zarifian, 1993). Work increasingly becomes a relational and communicational activity (Zarifian, 1996; Zarifian, 2001) which is often based on a process of fostering team responsibility.

Thus, as firms are subject to constraints, not only on productivity but also and mainly on quality, variety and responsiveness to market demands, employee involvement is not only essential (Linhart, 1994) but also quasi-obligatory in the search for creativity, flexibility and employee multiskilling. Employee involvement seems to be central to the capacity of organizations to compete and innovate, as is the case with the Japanese model of organization.

In this paper, we will refer to the results of a study on new responsibilities and the process of fostering team responsibility to explore the extent of participation in firms. We will present the results of a study of three North American firms that have adopted this collective configuration of work organization, focusing on the new responsibilities and the process of fostering team responsibility, the skills required and the role of supervisors.

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First, we will present a number of the more general elements on teamwork as a new form of work organization.

1. Teamwork organization

Teamwork is a flexible configuration that can be adapted to many production and organizational contexts. Its diversity and conceptual polysemy (Durand *et al.*, 1999; Salerno, 1999) are due to the different theoretical approaches to groups in organizations, but also to the different societal contexts that are, to some extent, transforming the theoretical model (Tremblay and Rolland, 1999). Moreover, it should be recognized that its polysemy stems from the fact that this expression is used to describe diverse realities and, in particular, teams functioning at different hierarchical levels. Management teams, production teams, support staff teams, project teams, continuous improvement groups and client service teams are but a few illustrations of the variety of groups that firms use in their day-to-day operation (Hackman, 1990; Cohen and Bailey, 1997). However, these realities are very different from each other and not all of them are dealt with here.

Indeed, some of them are neither innovations nor imply genuine forms of teamwork; this is especially true of management teams, support staff teams, project teams (which are temporary) and client service teams. We will focus principally on forms of teamwork that offer alternatives to the fragmentation of tasks and in which team members are given greater responsibility.

1.1 Visions of teamwork

Not only have different forms of teamwork been identified, but teams have also been studied from different perspectives (Savoie and Beaudin, 1995; Guzzo and Shea, 1992). It could be said that it was through the Hawthorne experiments in the 1920s in the Western Electric plant that management scholars discovered the role of groups in the operation of firms (Roethlisberger and Dickson, 1939). Although the resulting human relations school of management certainly reintroduced the group as an organizational reality, it was through the sociotechnical approach of the Tavistock Institute in the 1950s that the idea of the team as a voluntary form of organization was systematized. The research showed that the work group is a social system that can have a major impact on the effectiveness of firms (Trist and Bamforth, 1951).

During the 1970s, it was the successful experiments with semi-autonomous teams in the Scandinavian countries that helped show that teamwork was a viable solution to a number of organizational problems, particularly those related to the decrease in productivity gains (Shea and Guzzo, 1987). They also showed that teamwork could be an antidote to the lack of motivation at work, which itself may contribute to low productivity. The Scandinavian model of work organization has not been widely disseminated outside Sweden (Tremblay and Rolland, 1998).

In the late 1970s, interest in teams became identified with the *quality of worklife* movement which favoured the transformation of the work place through labour-management cooperation and the creation of semi-autonomous groups of production workers.

In the mid-1980s, the Japanese system became the main reference point in the implementation of teamwork. This was the main impetus for the resurgence of interest in teamwork which occurred during the 1990s and has continued into the new millennium. Global competition, the opening of borders and deregulation are all economic shocks that



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compel firms to move towards strategies that focus on product quality, innovation and diversity. The adoption of these strategies, however, requires degrees of flexibility, rapidity, effectiveness and efficiency on the part of employees, which are hard to achieve without using relatively autonomous multiskilled teams. Indeed, teamwork appears to be a kind of response to the economic context, a configuration of work organization that appears to meet dominant economic requirements in the current context. To ensure greater flexibility of work organization and more rapid adjustment, teamwork and participation appear to be essential. As we found, this is not to say that this model is being introduced everywhere.

According to a number of authors, the various models that have appeared since the 1930s have survived until today. Thus, according to Durand (1999), there are four main models of work organization that have a work group as their base. The first is the Fordist model, which describes a univocal relationship between the supervisor and a group made up of individuals who do not necessarily have relationships with each other. In this type of team, which is almost entirely governed by an authority system, members are given few responsibilities. In the Japanese system, supervision of the team is less authoritarian and participation mainly focuses on technical questions that are dealt with in depth in the much-vaunted quality circles. The third model, which is half-way between the Japanese model and the model of semi-autonomous teams, is made up of teams formed for economic reasons. This last model appears to be oriented towards the quality of work life and gives the group a degree of freedom to organize its work within the group. In this context, the supervisor's mission is to help the group operate. However, each firm is submerged in a particular context and teamwork may consist of a combination of aspects and nuances from each of the models suggested by Durand (1999). Each organizational reality and production system therefore use teamwork according to a particular configuration, which may include variable degrees of autonomy, interdependency between members, responsibility and supervision style.



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Table 1
Four Standard Models of Teamwork Organization

	Team in the traditional Fordist system	Team in the Japanese system - Toyota	Team in systems other than Japanese	Semi-autonomous team (Sweden and Germany in the 1970s)
Nature of tasks	Prescribed tasks and imposed operating methods	Prescribed tasks and imposed operating methods (little internal autonomy)	Prescribed tasks and imposed operating methods (little internal autonomy)	Work freely organized within the group
	Synchronization based on time and motion studies with few modifications; almost total lack of goals to increase production	Continuous improvement of synchronization; through <i>kaizen</i> , operators given minor role and supervisors and technical support staff given major role.	Improvement of synchronization; <i>kaizen</i> supported by management; contractual (but non-negotiated) goals	Synchronization models that can be negotiated within certain limits; production is the basis of goals which are more or less negotiated
	Centralized engineering department which is the point of reference for the work of employees	Engineering function more widely dispersed	Centralized engineering department without barriers between the research, engineering and production functions (increase in communication between them)	Centralized engineering department but without barriers between it and production
	Specialized operators and multiskilled backup workers	All employees multiskilled (high level of education and job rotation)	Most employees on team are multiskilled	Multiskilled employees (through rotation system); substantial occupational training
Role of supervisors	Disciplinary role: (a) no motivation system; (b) respect for discipline and (c) no local objectives	Technical production monitoring role; responsible for individual evaluation: (a) motivation based on meritocracy and (b) the importance of the role of peers (support, training and absenteeism)	Administrative role with little time for employees: (a) motivation based on meritocracy; (b) interest in work through change in its image (diversification of tasks, quality, planning, sense of real responsibilities) and (c) role of peers (absences et cooperation)	Administrative role oriented towards employees and their motivation; (a) motivation based on interest in work and attractiveness of job and (b) a positive work environment sought by team leader and supervisor
Interpretation	System that emphasizes discipline	System that emphasizes technical aspects	System oriented towards economic goals	System oriented to quality of worklife



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Source : Durand. (1999:17)

For example, in their analysis of a North American GM plant, Lévesque and Côté (1999) noted a series of perceptions regarding teamwork within the 17 work teams observed. They show that teamwork in a context of lean production stimulates support and social dynamics that are dissimilar and multiform. The evaluation of teamwork is closely associated with the way in which workers define the relational universe within their work team. Members who define their relational universe in terms of mutual exclusion evaluate teamwork essentially as a constraint. Those who conceive of it in terms of mutual adjustment have a moderate view of teamwork, while team members who define it in terms of fusion evaluate it rather positively. However, despite the differences in their evaluations, 75% of team members are of the opinion that their work load increased during the last three years and nearly 70% indicated that pressures related to productivity increased during this same period.

However, it should be pointed out that even when the establishment, operation and social relations within the work team are far from homogeneous and uniform (Lévesque and Côté, 1999), many authors are in agreement about the core of team-based work organization.

Thus, to make up a team, members must have a minimum of (a) task interdependency among members; (b) shared responsibilities; (c) team identity; and (d) power to manage the relationship between the team and the organization (Hackman, 1987; Guzzo and Dickson, 1996; Sundstrom, De Meuse and Futrell, 1990; Cohen and Bailey, 1997; Savoie and Mendes, 1993).

This vision can be used to distinguish teamwork from the Taylorist and Fordist systems of work organization. Teamwork allows members to achieve a level of multiskilling, to share information and to be more responsible for quality and productivity (Marx, 1998) as well as providing less rigid and disciplinary supervision. Even when supervisors tend to change their hierarchical role in order to become facilitators, coordinators or even resource persons, firms do not eliminate certain forms of control such as performance indicators (Salerno, 1999).



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Table 2
Teamwork vs. Traditional Work Organization

Traditional work organization	Teamwork Organization
Management-centred	Client-centred
Specialized and isolated employees	Multiskilled employees
Several job descriptions	Few job categories
Little diffusion of information	Information shared widely
Several hierarchical levels	Few hierarchical levels
Emphasis on department or function	Emphasis on entire organization
Individual goals	Common goals
Impression of structure	Impression of chaos
Emphasis on problem solving	Emphasis on fulfilling mission
Upper-level management highly involved	Workers highly involved
Continuous improvement	Continuous improvement
Management control	Self-control
Based on policies and procedures	Based on values and principles

Sources: Based on Glaser and Bayley (1992); Roy (1999); Roy et al. (1998).

1.2 The new distribution of responsibilities in the context of teamwork

The involvement expected of workers in firms that are structured into teams goes far beyond the simple execution of predetermined tasks, which was the norm in the Taylorist and Fordist systems. Workers grouped into teams are, in principle, given the incentive to manage their unit in addition to accomplishing their work. In other words, teams (usually referred to as autonomous and semi-autonomous) should determine not only when and how to accomplish the work assigned to them but sometimes also the work pace. Often this delegation of decision-making power comes with the delegation of responsibility for producing (on time and according to prescribed instructions) goods and services destined for the firm's internal and external clients. Thus, in its most advanced form, the new distribution of responsibilities can eliminate the need for intermediaries between clients and suppliers, bring decision-making closer to the action and use the synergy of teams to quickly respond to variations in market demand.

According to Marchington (1992), teamwork is the most advanced form of the reconfiguration of tasks and responsibilities since it allows for an extension of



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responsibilities that is both horizontal (workers execute more tasks at the same level) and vertical (workers are made responsible for more tasks that previously came under other hierarchical levels, that is, under foremen and supervisors). Thus, teamwork includes not only the delegation of tasks but sometimes also the transfer of part of the control over tasks within the team.

In North American firms that have adopted teamwork as a new form of work organization, a change can already be seen in the nature of the responsibilities entrusted to teams. For example, in his mail survey of 124 firms, Maschino (1991) found that a minority of the firms had changed their work organization on the basis of a decision-making structure that decentralized certain powers by entrusting them to shopfloor teams and by decreasing the number of levels between these teams and management. The teams took initiatives particularly in the areas of productivity (80% of cases), quality (84% of cases) and occupational safety (73% of cases). It should be noted that team responsibility for establishing production goals was mentioned by only 27% of firms in the sample. Indeed, Maschino (1995) found that in most of the ten firms that had adopted teamwork, several responsibilities were transferred to employees and the role of middle managers was also transformed to one of providing technical support and assistance-advice rather than being limited to enforcing the observance of management procedures. We will deal with the scope of the delegated responsibilities below in the discussion of our own results

Maschino's (1995) findings appear to be supported by the results of research conducted by Roy *et al.* (1998). The results of their case studies of 34 firms that had introduced semi-autonomous work teams reveal that 50% of the first-level decision-making responsibilities of teams were related to daily operations. The second level was made up of activities about which between 20% and 49% of teams make decisions and tends to include organization and supervisory activities. These deal with the way to carry out these activities rather than with the accomplishment of the basic work itself. Less than 20% of the teams studied by Roy *et al.* (1998) make decisions that are at the third decision-making level which have either a determining influence on the work life of team members, or long-term or strategic consequences for the team. Only a minority of teams, ones that had attained a very high level of maturity, were involved in the latter decision-making level.

In half the establishments studied by Grant, Bélanger and Lévesque (1997), the autonomy of team members, enrichment of tasks and relaxing of hierarchical supervision constituted the main transformation of work organization. In this context, teams usually go hand-in-hand with task multiskilling, investment in training and reduction in the number of managers and hierarchical levels (Maschino 1995).

Unions often maintain that responsibilities are assumed in various ways and at different stages when carrying out tasks. According to them, in any teamwork, there are two types of tasks that are absolutely essential and inextricably linked, that is, technical tasks and social tasks. Technical tasks are those directly related to work execution and production. They concern the definition of production goals, planning activities and establishment of deadlines, the choice and examination of material means, assessment of staffing needs, the definition and allocation of tasks between team members, the development of work schedules, the evaluation of costs and preparation of budgets, and evaluation of results.

Social tasks include the exercise of leadership, training of members, health and safety, specific programs, the definition of communication channels and team meetings. They have a decisive influence on the quality of life within the team and make the concrete expression of the values shared by its members possible. For the CSN union, the level of



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autonomy of teams can be assessed through the nature of the technical and social tasks that they assume. Autonomy will increase over time, depending on the evolution and maturity of the team, the dynamics of the relationships between teams and the agreed-upon rules in the collective agreement.

1.3 The process of fostering team responsibility

Even though teamwork obviously requires the transfer of responsibilities to teams, this transfer alone does not explain the involvement of team members. According to a number of authors, the effectiveness of teams and their willingness to undertake new responsibilities are influenced by a whole set of factors. Savoie and Beaudin (1995) link the effectiveness of increased responsibilities to functional components such as (a) interdependency in terms of the environment (feedback from clients, supervisors, team mission, inter-team coordination, management support), (b) task interdependency of team members (skills development) and consequences (sanctions based on results) and (c) the quality of transactions between team members (interpersonal relations, production energy, shared effectiveness and group cohesion).

Some authors underline that the process of fostering team responsibility will achieve the objectives of increased productivity, flexibility and effectiveness as soon as teams enjoy conditions that are conducive to decision-making and collective learning (Edmondson, 1999). These conditions will allow teams to become truly committed to the new responsibilities that they have been given.

Guzzo (1986) suggests that the decision-making process within the team consists of four phases that do not occur in a linear or orderly fashion, that is, (1) the identification of potential (intelligence), (2) the creation and development of the opportunities for actions, (3) choice and, finally, (4) review. According to a number of theorists, the factors that determine the effectiveness of team decision-making are (a) the nature of the task (in terms of the requirements that it imposes in the process of group interaction and motivational properties), (b) the existence of rewards for group performance (and the distribution of rewards so as to motivate members to interact and make the effort necessary to accomplish the task), (c) the availability of resources for the team (resources within the team and in the environment in which the team is located), (d) the autonomy given to the team and (e) the pertinence of the performance strategies used by the team to implement the decisions made.

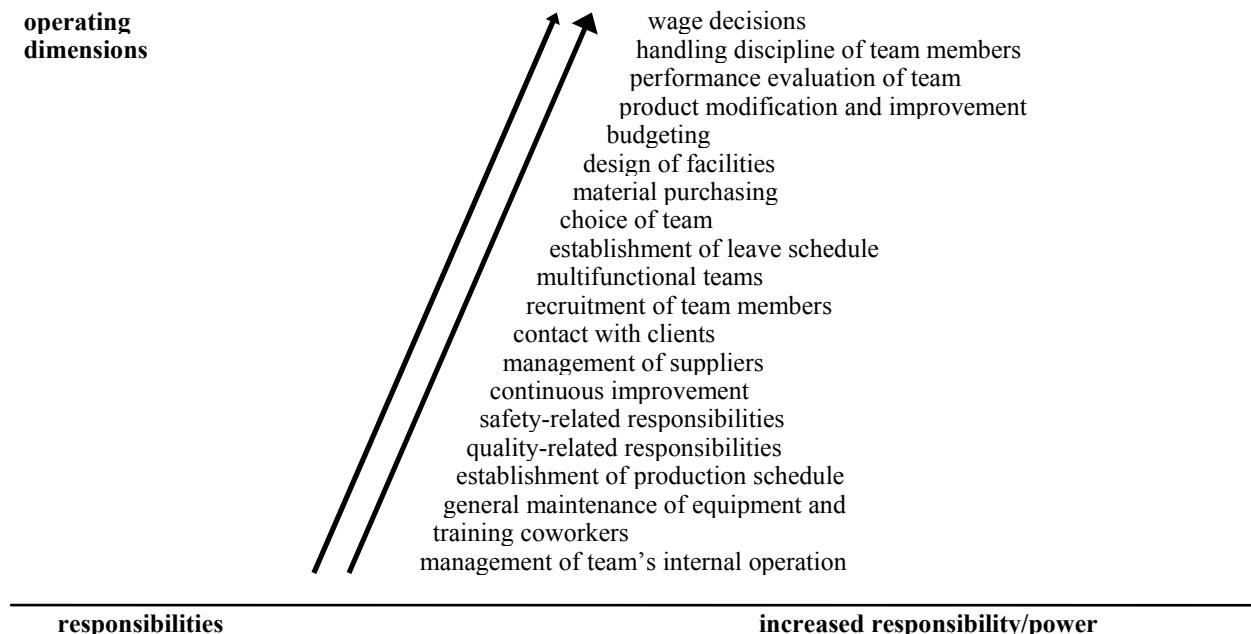
Indeed, for some authors (Guzzo and Shea, 1992; Grant, Bélanger and Lévesque, 1997), the level of team responsibilities varies according to the degree of autonomy that they have been given. More traditional structures will give work teams powers that are less extensive and still concern production goals, quality evaluation and the most appropriate work methods. Thus, for these authors, the degree of autonomy and types of responsibilities given to teams appear to evolve according to their maturity (Roy, 1999; Roy *et al.*, 1998), since learning the team decision-making process requires time, experience of life as a team and a degree of social cohesion (McGrath, 1991). According to this vision, the decision-making autonomy of teams follows an evolutionary process that develops in parallel with group maturity (see Figure 1). In other words, the more a team demonstrates its maturity, the more chance it has of being given significant responsibilities in the management and organization of work



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Figure 1

Progression of responsibilities



Sources : Roy (1999); originally by Wellins *et al.* (1991)

The extent of the responsibilities entrusted to teams and the scope of their powers appear to evolve with the length of experience of the groups. In the sample of manufacturing sector firms studied by Maschino (1991), the most common level of autonomy concerned the allocation of tasks, the power to designate or recommend the coordinator of the group and to analyze product quality. The second most common concerned minor preventive maintenance of equipment and the ability to directly contact the department responsible for this function. At a more advanced level of progression, teams managed the list of people designated to work overtime and replace absent workers as well as vacation planning. Finally, in a very small number of cases, teams could make minor purchases and had been given certain responsibilities in the area of environment and occupational health and safety. In only very few firms did team members appear to evaluate each other's work and participate in handling the discipline of teams.

This transfer of decision-making power regarding tasks is closely related to the style of supervision of each team. Thus, the change in the roles of supervisors and team leaders closely follows the process of development of autonomy and responsibility of teams. The greater the degree of control is within the team, the less it turns to the hierarchy in decision-making.

According to Letize and Donovan (1990), the supervisor must proceed through a succession of four functions in order for the team to succeed. At first, he must consolidate the team (leader, trainer and expert roles). He must then, as an animator and facilitator, oversee the development of the skills of the individuals who make up the group. At the next



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stage, he puts more emphasis on the management of the team's performance (role of auditor and buffer to protect the team from external attacks). Finally, the supervisor plays the role of external consultant to various teams to help them reach their goals (advisor role).

Roy (1999) identifies three types of supervision that form a kind of continuum of team autonomy. When teamwork is first adopted, the role of supervisor tends to change. The supervisor becomes a facilitator, a resource person or coordinator who helps the team to assume its new responsibilities. A team member may then be chosen as team leader to coordinate and represent the team. He may report to a senior manager or a coordinator who supervises a number of teams. Finally, some firms have chosen to distribute management responsibilities among team members. In this case, each team member so designated becomes the team's reference person for the particular matter for which he is responsible.

For example, in the automobile industry (Durand, 1999), team leaders are operators whose technical expertise, interpersonal and communication skills and human qualities have been recognized. They do not have administrative power and are not part of the firm's hierarchy. The team leaders play a central role in communication. They organize horizontal communications within the team and vertical communication with management. Because of their pivotal role between these two communication systems, they occupy a heterogeneous and paradoxical position.

Contemporary authors recognize the determining influence of the organizational context on the involvement and effectiveness of teams (Guzzo and Shea, 1992; Sundstrom, De Meuse and Futrell, 1990; Hackman, 1987; Goodman, Ravlin and Argote, 1986; Gladstein, 1984; Nieva, Fleishman and Reick, 1978). Several dimensions of the organizational context are considered – technology, human resource management policy (Shea and Guzzo, 1987a; Hackman, 1987); and the support and involvement of management and the organizational structure (Gladstein, 1984).

Union power is a contextual element that may influence the devolution process and the level of responsibilities of teams. Indeed, the review of power relationships and traditional roles that is required by teamwork directly concerns union power. Without taking a definitive position on the subject, Quebec's major union confederations deal with semi-autonomous teams from the perspective of the democratization and humanization of the workplace (Doré, 1995; Gagnon, 1997; CSD, 1997). For the unions, autonomy implies that workers effectively control the pace and methods of work. This redistribution of power towards the base of organizations is seen as a gain in terms of improving the work environment and working conditions of individuals.

Quebec's Confédération des syndicats nationaux (Doré, 1995) supports the processes to implement teamwork considering that they may help to further workplace democracy, the protection and promotion of quality jobs, the production of better goods and services as well as the social responsibility of management and union actors. Indeed, teamwork presents unions with new challenges: the fact that it gives a maximum number of persons a voice and decision-making power gives the union a primary role in the implementation of this collective form of work organization. According to the CSN, the decentralization of power, rights and responsibilities introduced by teamwork has an influence on several aspects of how unions operate and are highly concerned by the delegation of responsibilities and autonomy that characterize teamwork.

According to Savoie and Beaudin (1995), the process of increasing team responsibilities is directly related to the interpersonal relationships between team members. It is presumed that effectiveness and involvement are supported more when team members



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help each other or have appropriate and enriching social interactions. This process of interaction refers to behaviours and reactions of team members regarding the exchange of information, expression of feelings and formation of coalitions (Guzzo and Shea, 1992). Thus, in addition to being a source of solidarity and social cohesion (Hodson, 1997), the quality of interaction within the team is fundamental to understanding the affective and behavioural consequences of forming a team.

In brief, in this first part, we have seen that the process of fostering team responsibility, like all processes of technological or organizational innovation, is not a simple linear process of transferring responsibilities. On the contrary, it refers to a set of dimensions such as task interdependency, interdependency with regard to the organizational environment, type of supervision, interpersonal relations between members, degree of autonomy given to teams, availability of resources, management support, human resource management policy adapted to teamwork, organizational structure, union role and a whole set of variables.

2. Teamwork in three North American firms

Throughout the 1990s, a considerable number of North American firms adopted teamwork as a new form of work organization. Monographs of firms reviewed by Grant, Bélanger and Lévesque (1997) showed that several of the firms have adopted teamwork. A study by Roy *et al.* (1998) identified 92 establishments in Quebec that had at least one semi-autonomous team. A research study conducted by the Quebec Department of Labour (1996) indicated that in 10 of the 19 establishments studied, work organization was transformed through the creation of teams of employees with more responsibilities. Maschino's study (1991) on the impact of globalization on Quebec industries showed that 19 firms used semi-autonomous teams as their principal form of collective work organization. These studies did not go into much detail on the functioning of teams however, which prompted us to do a more detailed and qualitative research.

We therefore studied teamwork in this context, one in which teamwork is becoming increasingly widespread but is not yet universal, with a particular focus on the process of fostering team responsibility. In this part, we present the results of our study of three firms that have adopted this collective configuration of work. We will first describe the firms in question, the structure of their teams and their supervision, and then we will present for each case, the new responsibilities entrusted to the teams and the main components in the dynamics of the process of fostering team responsibility. This process and the social relations of work seem to be based on a variety of factors such as multiskilling, interpersonal relations, task interdependency, team rotation, client feedback and management support.

2.1 Our research and the case studies

Our goal was to examine in depth the implementation and operation of teams in various contexts. Thus, we targeted unionized and non-unionized firms in different industries. Then, in 1998 and 1999, we (a) observed the teams over a few days, (b) conducted interviews with the person or persons responsible for the implementation and development of teams and (c) conducted interviews with members of one to three teams in each workplace.

The reasons put forward for the adoption of teamwork are specific to each case. However, a common motivation seems to be that teams could generate some flexibility in production, which would help deal with competition and the market's new requirements in



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terms of productivity, performance, and quality of products or services. This primary motivation concurs with Maschino's results (1995) which show that the immediate goal of team-based work organization in Quebec firms is either to reduce costs or continuously improve quality through a better conception of the production process and an increase in the effectiveness of operations. In Maschino's study, the triggering factors are as follows: risks of closure or sale of the establishment, the introduction of new production technologies, the improvement of quality and productivity in view of a medium or long-term competitive advantage.

Table 3
Description of the Quebec Firms

	Industry	Number of employees	Unionization	Team structure	Leaders and supervisors
Firm A	Machinery and assembly	90	Non-unionized	4 teams 5 to 7 workers per team 1 work shift	1 supervisor for the 4 teams appointed by management
Firm B	Chemical manufacturing	200	Non-unionized	4 teams 10 workers per team 2 work shifts	5 supervisors appointed by management based on seniority
Firm C	Lumber	138	Unionized	4 teams 6 to 10 workers per team 4 work shifts	16 team leaders appointed by management based on seniority

With regard to the case studies, it was observed that Firm A reorganized its production process from 1994 onwards in order to reduce costs and improve the quality of its products. Firm B adopted teamwork during a reorganization in 1995 in order to increase its productivity, taking account of other experiences in the same industry. Firm C introduced teamwork through a change in management and the type of production. In parallel with the introduction of new forms of work organization, there was a decrease in the number of supervisors in most cases. The number of supervisors in Firm B decreased from 12 to 5 between 1995 and 1998. Firm C eliminated all supervisor positions in 1996.



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2.2 Distribution of new responsibilities

In line with the trend shown by other studies of Quebec firms, the new responsibilities within the firms in this study mainly related to the improvement of the quality of products and services (see Table 4). It was indeed observed that team members were more and more responsible as a group for the quality of their work and products.

In Firm C, the teams manage the manufacturing orders, carry out quality control, design, define and update the documents describing the products, make repairs and carry out preventive maintenance. The team is also responsible for informing and training new workers, handling their hours and vacations, organizing changes in assignment, welcoming visitors and explaining its work, providing replacement workers to other teams when a member is absent, and discussing on-the-spot what does or does not work.

Table 4
Distribution of responsibilities and roles of supervisors

	EMPLOYEE RESPONSIBILITIES	ROLE OF SUPERVISOR	
	Currently	Before	Currently
Firm A	Problem solving Product quality Innovation and change in work and production process Client satisfaction	Not mentioned	Provides work tools Provides support and assistance Provides training
Firm B	Discipline of team members Rotation and multifunctionality of team members Training and apprenticeship of team members (coaching system) Product quality Equipment and plant maintenance Modifications of production operations Client service (internal and external)	Ensured discipline and control	Facilitates employee development Provides training Supports the multiskilling system Coordinates activities
Firm C	Hiring new members by a committee Training team members Calibrating equipment Handling discipline of members Writing up production reports Modifying equipment Organizing workplace Product quality	Ensures discipline and control	Coordinates production-related activities Compiles and evaluates team's productivity



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The most common types of responsibilities, which were at a more advanced level than those of quality control and improvement, related to training of team members, innovation and modifications of the work process, equipment maintenance and modification, and workplace organization (firms B and C). Lastly, only Firm B teams had some power to discipline their members.

2.3 The process of fostering team responsibility

In all three cases, the type of responsibilities given to employees who are now grouped into teams has been reorganized quite extensively. Team responsibilities were broadened in the 1990s in order to make employees more multiskilled and directly responsible for their work.

This process of fostering team responsibility does not occur naturally because it includes both prescribed and non-prescribed tasks (Johansson, 1997). In fact, being responsible means executing non-prescribed tasks, not only the tasks that are planned and imposed. The process of fostering team responsibility is based on the active role played by team members in order to create new potential and react to the various daily work situations (Johansson, 1997). Thus, this process, which is not automatic, presumes that there will be a degree of commitment to the new responsibilities on the part of the team.

On the one hand, fostering team responsibility depends on the teams' willingness and ability to take on the new responsibilities, to deal with relatively varied and complex situations while developing their capacity to act (Bercot, 1999). Far from being a linear process, the team's commitment to its new responsibilities is influenced by such things as the nature of the task, the existence of a reward system and mechanisms for feedback on group performance, the availability of resources, a minimum degree of autonomy and discretion, as well as management support for its decisions.

On the other hand, increased responsibility is closely linked to the type of authority that the supervisor adopts within the team. In other words, the process of fostering team responsibility cannot be understood without considering the changes in the nature of the team's supervision. Supervisors have an important moderating and adaptive role to play in the process of actually involving team members in the new responsibilities.

Our field research indicates that this process of fostering team responsibility brings out the particular characteristics in each firm. Some of the basic factors in each firm's process of involving teams in the new responsibilities are presented below.

Firm A

The process of fostering team responsibility in Firm A is essentially based on four factors: (1) task interdependency among sub-teams, (2) management feedback on and support for suggestions proposed by team members, (3) client feedback on the quality and modifications of products and, lastly, (4) informal and interpersonal relations between team members that seem to foster group cohesion.

Task interdependency

The four teams in Firm A are involved in a continuous flow production process, where there is clearly a high degree of team interdependency. In other words, members



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must rely on the teams who precede them to execute their work and deliver the machines which are custom-built for each client.

Interdependency in terms of consequences (the client)

As this is a small firm that produces custom-built moulding machines, there is client feedback on the quality and functionality of the products purchased, and even on the modifications in their specifications. In other words, if a machine does not work well or performs poorly, the client can meet with the production manager and, then, meet the teams directly to solve the problem or simply to ask for some adjustments to be made. It is reasonable to think that, in the case of this firm, the opportunity for client feedback on product quality and production lead time has a considerable impact on fostering team responsibility. This feedback is characterized by sanctions and demands from clients that clearly affect the process of fostering team responsibility for quality and production lead time.

"It used to be that nobody told you anything about changes directly. They would just happen and you had to live with it and did not understand anything. Nowadays, we are told. The client has made a change, so we have to make part of the machine again. You are less frustrated because you are involved."

Management feedback and support

In order to improve the quality of the production process, employees suggest modifications to the team leader and then to the production manager. Employees' suggestions for improving the quality and production process seem to have received management support and feedback. This is the third significant factor in understanding the extent of the process of fostering team responsibility in this firm. The production manager explained the importance of suggestions and described management's trust in employees in the following terms:

"...this man here came up with a very good idea of how to improve the production of the tailstock spindle. He did not try to modify the machine but he changed his work process. Instead of taking 9 hours, it now takes 8 hours. I may be the manager but I look after my people. It makes them feel happy and useful. It's all very well asking them what they think but if their suggestion is not taken up, you need to explain to them why. It's not a question of just saying your idea isn't good. You go and see him and say to him 'your idea does not work because of such and such a reason.' It's important to tell him exactly how his suggestion has contributed."

"...there are people who have made suggestions, not necessarily people from the engineering department but people on the shopfloor. Many suggestions from people on the shopfloor have been used to make changes to the machines."

"We have given people responsibilities. We have trusted them. We hide nothing from them."

"The improvements that were made at that level were made by the employees with the support of management because management trusts them and knows that the employees won't mess everything up."



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Quality of communication and interpersonal relations

The informal nature of interpersonal relations is the fourth factor that seems to play an important role in the process of fostering team responsibility in Firm A. Communication between team members relates in particular to task content, interpersonal relations, the needs and issues linked to the process of producing machines. Discussions between team members are informal and reveal a content that is expressive (affective or socio-emotional) and instrumental (related to the task to be accomplished). It seems that there is a degree of consensus on the skills needed to foster this type of communication or transaction, namely understanding, a positive attitude, mutual help, respect, the ability to express one's viewpoint and to listen to others.

Firm B

The analysis of Firm B shows that the process of fostering team responsibility is closely linked with (1) the multiskilling system (task rotation within a team) and (2) the system of rotating teams over five work shifts.

Multiskilling and intra-team interdependency

Firm B implemented a multiskilling system whereby each member must be able to execute all the tasks given to the team. A job rotation actually takes place every nine months. Moreover, multiskilling may include apprenticesing on tasks in other teams. The most significant result of job rotation and multiskilling is to make each employee's knowledge and know-how public.

“Since we rotate jobs, everybody does everybody else’s job. If somebody is missing, it’s easy to replace him because there is always somebody else who can do the job. We can ask anyone. □...□ The guys are not restricted by their chairs and desks. It’s everybody’s desk or chair. We have always learnt new things here. We don’t spend two years without learning something.” (operator, Team A, Firm B)

“The positive aspect of the team system is that it results in a great deal of multiskilling and operational flexibility. As overtime decreases, you are ready to deal with any situation.” (HR manager, Firm B)

The sharing of knowledge and know-how between team members is consolidated through the training system. Members of Firm B’s teams are responsible for training their peers. With regard to this method of training, it was noted that (a) as team members begin to acquire sufficient autonomy to have a degree of control over their time, their movements and their work and (b) as the differences in power between the members are reduced, the team can try out a significant apprenticeship process in the technical and social fields on its members (Brooks, 1994). This is the process referred to by an operator when he talks about the apprenticeship that goes on in his team. This apprenticeship process, which is created by the rotation and multiskilling system, is an unavoidable consequence of the interchangeability (Durand, 1999) between team members and the rapid changes between jobs. It also reflects the tacit transmission of knowledge which can potentially become a source of innovation (Leonard and Sensiper, 1998).

“In general, employees are provided with an initial or a basic training. Afterwards, there is a stage that is called apprenticeship or coaching. There are coaching forms. For some tasks, the employee must read the



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procedures, and for others, he must do the task under the supervision of a coach." (HR manager, Firm B)

"In the beginning, you watch the computer training. To start with, it's more your coach who does it. Then, at some stage, it's half and half. Afterwards, he looks at you doing the task and lets you do it. In a way, each team member has to be a trainer... For example, people from Unit 3 came here and it was me who trained them but, today, they train me. It's an exchange." (operator, Team A, Firm B)

"The procedure does not tell you that the pressure will change when the screen is removed □...□. It's not written down. Everything is interrelated and you get a feel for it." (operator, Team A, Firm B)

Moreover, the training responsibilities required by the job rotation and multiskilling system reveal that the process of fostering team responsibility also involves the development of a new set of skills. This set of skills is closely linked with a new type of evaluation. On the one hand, the skills mentioned by team members are related to both occupational contexts and individual characteristics. Thus, skills (Brangier and Tarquinio, 1997) for teamwork seem to be a dynamic combination of different factors (abilities, knowledge, reasoning strategies and relational qualities). On the other hand, the evaluation system is established through a policy of evaluating individual employees on the basis of the production targets that result from their work. It also includes an evaluation of behaviours and attitudes related to the group cohesion needed to foster the adaptation and responsiveness required by the production process.

Since the multiskilling and job rotation system makes employees' know-how accessible to everyone, the technical departments can also appropriate it in order to integrate it into the calculations of production times and scales (Durand, 1999). In fact, the context of work teams and increased multiskilling has blurred the boundaries between specializations and led to a reduction in the exclusive fields of skilled workers. Thus, workers with the most experience and seniority see this process as having the potential to downgrade qualifications. Many feel as if their status has been lowered and along with it, their self-esteem (our observations as well as Maschino's, 1995; Klein, 1994).

"Not long ago I did nine jobs. It didn't make any sense. When I was doing nine jobs, sometimes I had to go back to the laboratory but it was eight months since I'd been there" (Operator 1, Team C, Firm B).

"You lose your self-esteem." (Operator 2, Team C, Firm B).

"We lost our sense of specialization, which is what gave us our self-esteem. We become generalists, which is demeaning and frustrating." (Operator 3, Team C, Firm B).

"We lose our expertise, it gets diluted... The situation gives us more synergy, but it is more by default than by choice." (Operator 1, Team C, Firm B).

On the basis of this interpretation, it is easy to understand why some employees resist the job rotation system and its attendant multiskilling. For them, resistance becomes an implicit or explicit strategy of defending their specializations by preventing them from being shared and integrated into time rationalizations and increases in the daily production rate.



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"In the beginning, there were those who were very positive about the idea of learning something new. Today, we are more concerned about the application, about how it's done, and we realize that we have wasted our energy. It's hard on people's morale. We just try to meet the firm's requirements and nobody is going to put in any extra effort to improve anything." (operator, Team C, Firm B)

In fact, the process of fostering team responsibility in Firm B is varied and sometimes ambiguous; there is a degree of support for the new responsibilities but also some resistance from more senior employees to making their specialization more visible and accessible to team members.

Also based on our other observations, it should be acknowledged that the loss of specialization or sharing of knowledge and work actions poses a great challenge for teamwork. Many workers are unhappy about it and often tend to turn to the union to have the former labour and task division respected. Other than the Japanese model of guaranteed employment, it is difficult to identify a factor which will help overcome or attenuate these fears. However, this guarantee is somewhat fragile in the North American context, hence the resistance from some workers.

Rotation, interdependency between teams and sanctions based on results

Teams are interdependent because they operate under a system of work shift rotation. Thus, at any given time, any team may come before or after another team. It seems that this inter-team rotation due to the job rotation within each team creates a high degree of interdependency, and thus, introduces new forms of control and sanctions based on productivity and increased responsibility.

These new principles of disciplinary control are based on the fact that the results of production and staff reduction require that members have reasonably similar efficiency levels. In other words, if the most productive employee does the work of the least productive employee, the team has to compensate for a less productive employee, given that production targets are set elsewhere. However, this behaviour is acceptable during the period of socialization and apprenticeship only and not over the long term. Thus, it was noted that, within a team, there was the average effort that is relatively standardized according to (a) the expectations relating to the work pace imposed by the production targets to be achieved and (b) the number of employees who make up the team and are available to do the work. This formula refines the methods of social control and compliance with production rules because it is based on pressure from coworkers (Durand, 1999) and on what is referred to by some as "management-by-stress" (Parker and Slaughter, 1988):

"The guys are much more demanding of each other. If one makes a mistake, they will help each other, but if he makes a mistake on the board, the other will have to pay for it. Between themselves, they are more likely to help each other and not make it difficult for each other." (operator, Team A, Firm B)

"When we start a shift and see that the guy has tired eyes, we're going to be less demanding. But the next day, perhaps it's him who is going to take the heavier load from the other guy. It's sharing. □...□ we all depend on each other when there are production problems." (operator, Team C, Firm B)



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According to the various actors, there is a process of reciprocal control within teams. The team's social cohesion comes from its support for the system of goals and the encouragement of team leaders. The social relations within the team thus tend to exert pressure on the individual to comply with the prescribed standards. By regulating the previously set production targets, teamwork includes a disciplinary and authority role which was the purview of supervisors under the Fordist model of work organization.

Firm C

The process of fostering team responsibility in Firm C is based on (a) managerial role of resource and support; (b) information sharing and interpersonal relations between members, (c) teams' power to act and (d) management feedback.

Management as resource and support

Management encourages and supports team participation by fostering the initiative to communicate and transmit information about the firm's performance. Activities such as attempts to reduce costs, quality improvement or selection take place in a joint committee (the performance committee, recycling committee, value-added committee, health and safety committee). This committee is often led by an employee and the manager acts as a resource person. Responsibility is fostered through this involvement in management and open communication between management and team leaders. Any suggestion for improvement in the production process or life in the workplace is immediately examined and may be supported.

Feedback

Even though profit-sharing may be an incentive to participate, employees seem to be more motivated by the fact that there are numerous opportunities for feedback on the results of their work. Teams can meet each other as often as they wish and, according to the operations manager, "there are never enough meetings." Quarterly meetings between management and team leaders are held to discuss market trends, evolution of orders, investment plans, training plans and the evolution of committees' results.

Interpersonal relations, information sharing and shared effectiveness

Teams interact frequently, which creates a sense of unity and an impression that the team has the power to act (Guzzo *et al.*, 1993). This seems to stimulate a continuous flow of information without intermediaries. Team leaders communicate directly with the maintenance team to suggest modifications or report wear and tear or breaks in machines. The coordinator and the team leaders handle the absences and vacations. In fact, the opportunities to influence the processes, the visibility of interventions and the type of interaction between team members seem to valorize contributions outside the usual work tasks. It seems that the links between the firm's production, level of profits and pursuit of activities are generally perceived to be legitimate and fair.

Power to act and new responsibilities

The teams were entrusted with all kinds of new responsibilities when the firm eliminated all the supervisor positions. Each employee now has at least one report to fill out. Training is carried out by employees using a training form that they designed themselves.



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Each team's sub-unit is led by a team leader responsible for overseeing workforce movements and, to all intents and purposes, the teams self-manage the collective agreement. Since the union supported the teamwork structures, teams enjoy a high level of legitimacy. Moreover, the coordinator of the team leaders is also the former union president. The increased responsibility of teams is largely due to this fact alone. Responsibility is fostered through a certain degree of autonomy in problem solving.

"I let them manage the shopfloor...People move things. They can put their Number 3 packet where it's easiest for them to find or organize their things in such a way that they can find things easily. Everybody is a leader here, I have no problem with the way they do things, even though I am not entirely happy with it. But if they find that it does not work, it is up to them to manage it. I often tell them, talk together, there are four of you in four teams doing the same job, discuss it." (quality manager, Firm C)

In fact, the firm's structure of authority has almost entirely disappeared and has been replaced by a control structure that is assumed by employees. The teams handle the discipline problems on their own, without having the right or means to apply explicit sanctions. However, they do apply other means of control in order to ensure that the work is fairly allocated.

"An employee was late all the time, so one day the team decided not to start working without him. He arrived and everybody was waiting for him: he got it." (union member, Firm C)

"They will always try to solve the problem within the team. This is always the first step that is taken. They will talk to the individual. We encourage them to do that and it's important that the teams solve their internal problems. That's why we don't often intervene." (quality manager, Firm C)

2.4 The role of supervisors

As a whole, the examination of these three firms suggests that there has been a change in the style of supervision (see Table 4). The supervisor, whose role used to be disciplinarian, authoritarian and controlling, is beginning to adopt attitudes aimed at fostering participation and training (Firm A and Firm B). In addition to becoming a coordinator of activities (Firm B and Firm C), the supervisor provides team members with the support and assistance needed (Firm A).

"People are there and if I can give them tools to help them work, I'll do my utmost to give them. People feel that they are being supported ." (supervisor, Firm A)

"Although formerly the supervisor used to control... nowadays, it is the operators who control the quality, operations and maintenance of their equipment. □...□ the employees have taken charge of their quality, their environment, their work, their maintenance. □...□ the supervisor must get involved with his workers in order to foster their development and training, he must be close to his team and bring together multiskilling." (HR manager, Firm B)

"We make a lot of choices in our job. It's not just planning, there is also a great deal of coordination. The support provided by the team is □...□ management and maintenance, changes in products, communication with



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engineers. □...□ I don't need to check if the guy has done all his work. If it's not done, whoever takes over will do it. The other guy will say that the team hasn't done this or that. In 24-hour-a-day rotation, you don't have a choice. The guys have work to do." (supervisor, Team C, Firm B).

"We are trying to reduce the policing role, to move towards a role of problem solving, of helping each other: to be helpful to the teams." (coordinator, Firm C)

If the supervisor becomes a team leader, he can do a lot more than coordinating activities and being a facilitator for team members; he can have a structuring effect on the ability of workers to exert a form of control over the work activity, as was also observed by Lévesque and Côté (1999). When the team leader acts as a key player within the team, workers are in a better position to influence decisions relating to workload and methods of work. They also tend to stress that decision-making powers be fairly allocated among workers, the team leader and the foreman. Thus, workers might not perceive teamwork as a constraint but rather as an opportunity to act (Bercot, 1999).

Conclusion

A few factors relating to the social dynamics within work teams are presented here, with a particular focus on the process of fostering team responsibility. This process does not merely involve a transfer of responsibilities. Team members must really get involved in the new responsibilities, and this is a challenge in itself. In the case studies, increased responsibility is perceived by some as a recognition of the team members' capacity to manage the work and they are happy about this evolution.

In Firm B, the interdependency within and between teams reinforces the sense of equity and fosters responsibility. Multiskilling makes it possible to clearly see the members' actions and their capacity to intervene, help each other and communicate with each other. In Firm A, the possibility of an intervention by clients, the face-to-face interaction with coworkers and a positive style of communication, including continuous support from management, stimulate what they themselves call "professionalism." In Firm C, the team structure has taken advantage of the communication channels already opened by the union structure and by the experience in managing discussions. Problem solving can be relayed to the lower level and the managerial staff then play a role of expert-advisor.

The autonomy of teams is developed as long as the tasks that require technical skills are effectively transferred or when the team's confidence in its own capacities is strengthened. Building the responsibility of members depends on the relative withdrawal of supervisors, the availability of management to provide continuous support to the teams, the dynamics of information sharing, interpersonal relations established between members and the sense of shared efficiency.

In all three cases, the development of interpersonal relations plays an important role. Just knowing the other worker's job can help create a productive dialogue and makes it possible to compare the targets with the real potential. These opportunities for communication are conveyed through the organization in the case of multiskilling, and when information is transmitted without intermediaries, either directly or through formal meetings. Thus, teamwork appears to be a mechanism that opens up opportunities for group expression and problem solving. This collective work organization can thus foster communication between workers and allow them to express their viewpoint or find better solutions to production problems.



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Nevertheless, the case studies also highlight a paradoxical aspect of the process of fostering team responsibility that will be examined in detail in our further studies. Although the teams appreciate the absence of close supervision, a degree of autonomy in decision making, greater influence on their environment and task enrichment, many employees, however, complain about the increasing tension and stress of having responsibilities that are sometimes too heavy, an intensive work pace and a heavy workload. One question remains to be explored: How do these contrasting dynamics -- cooperation and conflict, integration and opposition -- develop? Team-based work organization reflects new social challenges and the result is that it not only provides an opportunity to foster employee responsibility but also creates a risk of work intensification, especially in the difficult economic context faced by certain industries and firms. For team members, this often translates into tensions that they have to learn to manage.



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