

# WORKPLACE PREVENTION AND PROMOTION STRATEGIES



DISCUSSION PAPER

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## ABSTRACT

*Psychosocial factors refer to all organizational factors and interpersonal relationships in the workplace that may affect the health of the workers. Currently, two psychosocial risk models are universally recognized for producing solid scientific knowledge regarding the vital link between social or psychological phenomena at work and the development of several diseases, such as cardiovascular diseases or depression. The first is the "job demand-control-support" model, which was defined by Karasek and to which the concept of social support has been added; the second is the "effort/reward imbalance" model defined by Siegrist. The public health perspective*

*calls for theoretical models based on certain psychosocial attributes of the work environment for which there is empirical evidence of their pathogenic potential for exposed workers. Not only do these models reduce the complexity of the psychosocial reality of the work to components that are significant in terms of health risks, but they also facilitate the development and implementation of workplace interventions.*

*Psychosocial risk intervention strategies currently implemented by companies are predominantly individual-oriented and aim chiefly at reducing the effects of stressful work situations by improving individual ability to adapt to the situation and manage stress. Like personal protection equipment for exposure to physical or chemical risks, these secondary prevention measures are commendable but insufficient, because they aim to reduce only the symptoms and not the cause of problems. Any intervention program for these risks should necessarily include a primary prevention component with a view to eliminating, or at least reducing, the psychosocial pathogenic agents in the workplace. Several authors have suggested that well-structured organizational approaches are most effective and should generate more important, longer-lasting effects than individual approaches. However, the evidence should be strengthened by more systematic studies to assess the models, their implementation and the outcomes for employers and employees alike.*

*The research agenda on mental health and the workplace should have the following goals:*

- *to foster the development and evaluation of well-adapted models of interventions designed to reduce adverse psychosocial factors and their mental health effects*
- *to give a better understanding of the prevalence of work organization risk factors in Canada, how they may be changing and how they affect mental health in the long term*
- *to acquire an understanding of the effects on mental health of prominent trends in organizational practices, such as restructuring, lean production and flexible staffing (all of which result in precarious employment), that may pose special risks for women, immigrants or aging workers in Canada*
- *to collect data on the considerable direct and indirect costs to business, workers and society of work-related stress in Canada.*

### **State of Knowledge**

In the last decades, almost all countries in the western world have passed legislation to give employers the “duty to ensure the safety and health of workers in every aspect related to work” (EU Framework Directive – 89/391/EEC). The principles of prevention include “avoiding risks,” “combating

the risks at source” and “adapting the work to the individual” within “a coherent overall prevention policy.” To provide a basis for such endeavours in Europe, for example, the European Commission has published a detailed guide to the directive (European Commission 2002).\*

Regarding psychosocial risk factors, employers are facing difficulties in doing primary prevention, usually because they don't know how to define and, therefore, how to measure the risk factors. That is the reason that actual workplace strategies to prevent mental health problems at work are mainly targeting individuals; i.e., they aim at modifying the stress response (secondary prevention) or the stress-related health outcome (tertiary prevention).

### **Defining Psychosocial Risk Factors**

Psychosocial factors refer to all organizational factors and interpersonal relationships in the workplace that may impact health. There are many classifications of psychosocial risks at work. These classifications identify a considerable number of psychosocial factors and make it possible to document the stressful nature of a work situation, notably control (latitude, participation, use and development of skills), workload (quantity, complexity and time pressures), roles (conflict and ambiguity), interpersonal relationships (social support, harassment and recognition), career prospects (promotion, precariousness and demotion), organizational climate or culture (communication, hierarchical structure and fairness) and the interaction between work and private life. Despite the common denominators that variously link these factors, there is a regrettable absence of scientific consensus on how to define and measure a high-risk psychosocial work environment.

Obviously, a deleterious psychosocial work environment cannot be identified by means of direct physical or chemical measurements. The public health perspective calls instead for theoretical models based on psychosocial attributes of the work environment for which there is empirical evidence of their pathogenic

potential for exposed workers. Not only do these models reduce the complexity of the psychosocial reality of the work by dividing it into components that are significant in terms of health risks, but they also facilitate the development and implementation of workplace interventions. These “toxic” components can be identified through validated questionnaires that are applicable to all professions and work situations.

Currently, two psychosocial risk models, the “job demand-control-support” model defined by Karasek and the “effort/reward imbalance” model defined by Siegrist, are universally recognized for producing solid scientific knowledge regarding the vital link between social or psychological phenomena at work and the development of several diseases.

### **The “Job Demand-Control-Support” Model (Karasek)**

The “job demand-control-support” model is based on the finding that a work situation characterized by a combination of high *psychological demands* and low *decision latitude* increases the risk of developing physical and mental health conditions (Karasek and Theorell 1990).

*Psychological demands* refer to the quantity of work to be done, as well as its related mental requirements and time pressures.

These attributes are quantified by means of a questionnaire that assesses whether the worker perceives his work load as excessive, “very hard” or very hectic; whether it requires intense concentration during long periods of time, involves conflicting demands, is often interrupted before it is complete or requires working at a very fast pace; whether the worker has enough time to get the job done; and lastly, whether the worker is often delayed because he or she must wait for co-workers to finish their tasks.

*Decision latitude* refers to the ability to make decisions about one's work, particularly the possibility of being creative and using and developing skills. Thus, the concept of latitude has two components, namely authority (i.e., latitude to decide or influence how one's work proceeds), and opportunities for achievement at work (such as using one's creativity, having varied work that requires a high qualification level, learning new things and developing individual skills).

In 1998, 25% of women and 21% of men in Quebec were exposed to a combination of low latitude and high demand, known as "job strain" (Bourbonnais et al. 2001). In Europe, this figure rose from nearly 25% to 30% between 1991 and 1996, according to surveys by the European Foundation for the Improvement of Living and Working Conditions. This trend continued into 2000, when 56% of workers reported working at a frantic pace, 60% had to meet very tight deadlines for at least one-quarter of the time, 35% reported complete lack of control over their task, and almost one-third said they had no control over work methods or pace (Paoli and Merllié 2001). In the United States, between 1977 and 1997, the percentage of individuals who had to "work very quickly" or who reported "never having enough time to finish their work" rose from 55% to 68% and from 40% to 60%, respectively (those were respective increases of 24% and 50%) (Bond et al. 1998). Those conditions are associated with the major workplace changes of recent years, notably intensification. These transformations have been brought about by work restructuring, which is characterized by erosion of "downtime," heightened productivity demands (both for quality and quantity), flexibility and downsizing, which in turn have resulted in a fiercely competitive

and rapidly evolving technological labour market. In Quebec, a social-health survey conducted in 1992-1993 and 1998, showed that in the intervening period, the percentage of workers with low latitude at work rose from 44% to 56%. This increase was true irrespective of age group or sex, but it was higher for women than for men (62% compared to 51%) (Bourbonnais et al. 2001).

In the late 1980s, the social support concept was added to Karasek's model. Generally speaking, social support comprises all useful social interactions available at work, either with co-workers or supervisors. More specifically, there are two types of social support at work: socio-emotional and instrumental. Socio-emotional support refers to degree of social and emotional integration and trust among co-workers and supervisors, i.e., the extent of social cohesion of the work group and integration into it. Instrumental support refers to the level of help and assistance provided by others when one is performing tasks (Karasek and Theorell 1990).

The combination of high psychological demands, low control and low social support at work (*iso-strain*) appeared to be the most pathogenic (Johnson et al. 1989). It was also found that, independently of the two first axes of the model, lack of support at work adversely affected the health of exposed workers. Low support or lack of team spirit at work is also associated with occupational changes of the past decade, notably management downsizing and the pressures and competitiveness associated with new management styles, which often lead to individual withdrawal rather than solidarity, not to mention the additional possibility of psychological or administrative harassment.

### **The “Effort/Reward Imbalance” Model (Siegrist)**

The “effort/reward imbalance” model proposed by Siegrist in the late 1980s (Siegrist 1996) is based on the finding that a work situation characterized by a combination of high effort and low reward is accompanied by emotional and physiological pathological reactions. High effort may stem from two sources: one extrinsic, the other intrinsic.

Extrinsic effort is associated with time pressures, frequent interruptions, numerous responsibilities, increased workload, mandatory overtime and physical demands. Intrinsic effort, which will be referred to here as overcommitment, measures the attitudes and motivations associated with an innate need to surpass oneself, gain esteem or approval, or simply the satisfaction of tackling challenges or taking control of a threatening situation. This personality profile component is an add-on to the demand concept of Karasek’s model. Overcommitment is measured especially by the inability to distance oneself from work obligations or prevent work concerns from intruding on one’s private life.

Low reward is primarily observed as one of three forms: unsatisfactory salary, lack of esteem or respect at work (including low support and unfair treatment) and lastly, job insecurity and low career opportunities (including the prospect of demotion and work that does not correspond to one’s training).

While “control” is central to the Karasek model, “social reciprocity” (i.e., the possibility of access to legitimate advantages, duly earned according to the effort expended in the work) is the key concept for Siegrist’s model. This model is based on sociological theories of “self” and identity that underscore the importance of continu-

ity of fundamental social roles in the construction of self-esteem and individual sense of mastery and effectiveness.

In the populations studied, it has been calculated that 10% to 40% of workers are exposed to some level of “effort/reward imbalance.” That occurs chiefly among employees belonging to low socio-economic groups (Siegrist 2002). In part of a study conducted among 9,000 white-collar workers in the Quebec City region, the percentage of individuals exposed to “effort/reward imbalance” was in the range of 24% for both men and women.

This model is particularly well adapted to measuring the impact on health of another major characteristic of workplace changes in the past decade, namely, precarious employment. These effects are greater when they are prolonged, for instance if the labour market does not offer an alternative or the individual tolerates unfair working conditions in hopes of promotion. The model is applicable to a wide range of work situations, primarily among groups exposed to rapid socio-economic changes or structural unemployment. “Effort/reward imbalance” is frequent in service jobs, particularly those involving interaction with customers (Siegrist 2002). Lastly, this model is very relevant for assessing the impact on health of complexified work, notably as a result of technological advances. When technological changes are combined with increased quality and quantity requirements, they generate new problems for workers. In a context where the idea that familiarity with work is unnecessary for its management is increasingly taking hold, managers tend to rely on a set of so-called objective indicators, such as the number of actions per unit of time or customer satisfaction surveys. These evaluation modes are a far cry from taking

into account actual work problems or complexity, and they do not allow for judging and acknowledging the effort made to attain the results requested by the employer in consideration of trade requirements and professional standards. This lack of recognition weakens self-esteem and opens the door to psychological symptoms, such as anxiety and depression; physiological symptoms, such as increased adrenalin secretion, high blood pressure and disturbed sleep; and such behaviour as drug and alcohol consumption, violence and aggressiveness.

### **Empirical Evidence of the Pathogenic Effect for These Models**

Over the past 20 years, the “job demand-control-support” model defined by Karasek and the “effort/reward imbalance” model defined by Siegrist have been the focus of many research projects worldwide, and the results have clearly shown the pathogenic effects of these adverse work situations, primarily on cardiovascular and mental health, two pathologies whose links with each other have been well documented. Indeed, prospective cohort studies provide strong evidence that psychosocial factors, particularly depression and lack of social support, are independent aetiological and prognosis factors for coronary heart disease (Stansfeld et al. 2002).

In regard to *cardiovascular disease*, the research, with some exceptions that share certain weaknesses (Theorell 2001), overwhelmingly shows a link between job strain resulting from high psychological demands and low control, and cardiovascular disease (Bosma et al. 1997; Karasek et al. 1981; Niedhammer et al. 1998). With a prevalence of 23% (Bourbonnais et al. 2001), job strain in Quebec is a risk factor for cardiovascular disease comparable to sedentary

habits, smoking or high cholesterol.

The findings of cohort studies of workers exposed to job strain makes it possible to assess the relative risk of coronary heart disease as between 1.4 and 2.6 (this means that the probability of having a coronary heart disease is 40% to 2.6 fold higher when workers are exposed to job strain compared to non exposed workers), controlling for the known risks for cardiovascular disease (Siegrist 2002). Similarly, in the industrial sector the risk of mortality from cardiovascular disease associated with long-term exposure to job strain has been evaluated at 2.2, again after adjusting for the known risk factors for cardiovascular mortality (Kivimâki et al. 2002). In other words, exposure to job strain doubles the risk of serious cardiovascular disease, whereas smoking increases this risk by only 70%. The likelihood that work plays an important role in the occurrence of coronary heart disease is reinforced by the fact that known risks, such as those associated with nutrition, a sedentary life and smoking only partially explain new cases of coronary disease.

Of the three dimensions in Karasek’s model, low control latitude is the most harmful. Contrary to popular belief, individuals at the bottom of the hierarchy are more at risk. It has further been shown that in men, the incidence gradient of coronary heart disease in favour of higher classes of employment disappeared when low control over work was taken into account (Marmot et al. 1997). These conclusions are in accordance with research conducted on animals. In the 1970s, Jay Weiss demonstrated that animals will protect themselves against the effects of stress when they can exert control over the situation. He used the following experiment: two rats in a cage received the same electric shocks, but one

could block off the current by rotating a wheel, thereby protecting the other rat connected to the same electrical circuit. The outcome of the experiment was that the rats in a passive submissive position faced with the situation developed gastric ulcers while those with an active control over the situation were comparable to the control rats that did not receive any electric shocks (Dantzer 1984).

Siegrist's model has been validated by more than 12 subsequent independent studies, including many cohort studies. The relative risk of the incidence of coronary heart disease linked to "effort/reward imbalance" has been assessed at between 2.7 and 6.1, controlling for known risk factors of cardiovascular disease (Siegrist 2002). Similarly, in the industrial sector the risk of mortality due to cardiovascular disease associated with long-term exposure to effort/reward imbalance has been evaluated at 2.4, again after adjusting for known risk factors of cardiovascular mortality (Kivimäki et al. 2002)).

There are two biological mechanisms that could explain this excess of cardiovascular disease risk factors: direct and indirect. The direct action mechanism is manifested by increased neuroendocrine activity of the sympathoadrenal system that triggers short-term increases of adrenalin and noradrenalin secretions, the effect of which on the cardiovascular system is well-known (increased heart rate, high blood pressure, etc.). In the longer term, this situation is accompanied by an increase in glucocorticoids and cortisol to allow the circulation of glucose and lipids to cope with the increased energy needs caused by the situation. From the results of stress research, we know that a chronic stress situation can be accompanied by adverse health effects due to prolonged secretion of neurotransmitters, which leads to hypera-

drenergism or hypercortisolism (McEwen 1998). This endocrine stimulation can be triggered by fear, anger or irritation provoked by these work conditions. According to Siegrist, these adverse feelings are not necessarily conscious, especially when associated with day-to-day, chronic experiences (Siegrist 1996).

The indirect mechanism involves known risk factors, such as high blood pressure, atherogenic lipids, fibrinogen or even risky behaviour such as smoking or sedentary habits (Theorell 2001; Hellerstedt and Jeffery 1997; Schnall et al. 1990).

From this perspective, it can be stated that the previously mentioned relative risk of coronary heart disease and mortality from cardiovascular disease is considerably underestimated, because these risks were calculated in removing the effect of known risk factors of cardiovascular disease, such as arterial hypertension, high cholesterol, obesity, sedentary habits or even smoking.

As regards *mental health* problems, job strain, as defined by the Karasek model, has been linked to depression, psychological distress, professional burnout and increased use of psychotropic drugs (Bourbonnais et al. 1998; Karasek and Theorell 1990; Moisan et al. 1999; Stansfeld et al. 1995). In Québec in 1998, among the population aged 15 years that was employed, those who were exposed to job strain experienced twice as much psychological distress as those who were not. (23% compared to 11% among men, and 30% compared to 15% among women) (Bourbonnais et al. 2001).

The "effort/reward imbalance" has also been associated with an increased risk of functional disability from mental health problems. The increase is from 1.4 to 1.8 in men and from 1.8 to 2.3 in women (Kuper

et al. 2002). The same study showed that Siegrist's model was also associated with an increased risk of new cases of transitory psychiatric disorders; the increased risk was 1.7 in women and 2.6 in men (Stansfeld et al. 1999).

At the biological level, these disorders can also be linked to increased chronic stimulation of glucocorticoids secretion. Thus, when stress is repetitive, unavoidable or chronic, the response to the stress may last longer, thereby producing physiological and mental symptoms that lead to depression.

The impact of factors identified by both models has also been assessed on the general well-being of workers and on increased absenteeism rates. In Quebec in 1998, the percentage of working individuals 15 years of age and over who considered themselves in excellent general health was greater when these individuals, particularly women, enjoyed wide latitude at work (Bourbonnais et al. 2001). Other authors have shown that increased work absenteeism is found where there is a lack of latitude at work (North et al. 1996). Similarly, a six-year follow-up of a cohort of over 13,000 individuals showed that, in both men and women, low decision latitude and low personal social support (both instrumental and emotional) independently of each other predict a 17% to 24% increase in absenteeism (Melchior et al. 2003).

Lastly, several studies have shown that both models identify distinct psychosocial determinants that have independent effects on coronary disease, depression, worker well-being and overall health (Bosma et al. 1997; Tsutsumi et al. 2001). Thus, workers exposed to the constraints of both models have a higher relative risk of developing pathologies. That is especially the case, as discussed previously, of

workers at the bottom of the hierarchy with precarious jobs.

### **Major Trends in Intervention Research**

Psychosocial risk intervention strategies currently used by employers are predominantly individual-oriented (Kompier and Cooper 1999) and aim chiefly at reducing the effects of stressful work situations by improving individual ability to adapt to the situation and manage stress. These activities are usually part of an employee assistance program (EAP) that involves learning relaxation techniques or reinterpreting stressful situations as less threatening or that improves the perception of personal coping effectiveness. These cognitive-behavioural strategies, which are usually taught by counselling, consist of exercising more, smoking and drinking less, or adopting healthy eating and sleeping habits. Like personal protection equipment for exposure to physical or chemical risks, these secondary prevention measures are commendable but insufficient, because they aim only to reduce the symptoms of the problems, and not the cause.

Since the elimination of the source of problems is crucial to a public health approach, and since so many epidemiological studies underscore the pathogenic dimensions of some specific psychosocial risk factors, any intervention program for these risks must include a primary prevention component with a view to eliminating, or at least reducing, the psychosocial pathogenic agents in the workplace.

Several authors have shown that well-structured organizational approaches are more effective than individual approaches (Kompier and Kristensen 2001) and should generate more important, longer-lasting effects.

The authors who analyzed preventive



interventions that aimed at reducing psychosocial constraints identify five factors that are necessary for a project's success (European Agency for Safety and Health at Work 2002; Goldenhar et al. 2001; Kompier et al. 1998). They are support from senior management and involvement of all of the hierarchy; employee participation in discussions of problems and possible solutions; preliminary identification of worker populations at risk on the basis of validated theoretical models or their associated manifestations; rigorous implementation of necessary changes in targeted worker populations; on-site management of the procedure and changes.

In recent years, several studies have shown that if those factors are present, interventions focused on organization of work could have considerable benefits, notably decreased absenteeism and depressive symptoms or even increased well-being and productivity (Lourijnsen et al. 1999; Bond and Bunce 2001; Nielsen 2002; Kawakami et al. 1997).

### Significant Gaps in Knowledge

Despite the abundance of empirical evidence for the health impacts of the factors identified in the Karasek and Siegrist models, few intervention studies targeting these factors have been conducted or rigorously evaluated. Therefore, the *priority objective* of a long-term research agenda on mental health and the workplace should be to produce knowledge that fosters the development of well-adapted interventions designed to reduce adverse psychosocial factors and their mental health effects. According to the National Occupational Research Agenda Intervention Effectiveness Research Team, intervention research has three phases which are: development, implementation

and effectiveness and each is intended to address specific questions (Goldenhar et al. 2001). Evaluating the effectiveness of the intervention first necessitates assessing the development and implementation of the intervention.

With respect to intervention *development*, research studies should examine the following questions:

- (1) What is the best way to determine what changes are needed?
- (2) What changes are needed to enhance the health of the target population?
- (3) What are the best ways to bring about these changes?
- (4) What principles or theories in occupational health and safety and related fields might apply in a given situation?
- (5) What barriers hinder the desired changes?
- (6) To what extent does the target audience understand and accept the need for changes?

With respect to intervention *implementation*, research studies (also referred to as formative evaluation, process evaluation, program control and implementation assessment) should document how an intervention is carried out, in order to answer questions such as:

- (1) What are the intervention components (e.g., activities, organizational changes, materials and technology) and how were they planned, introduced or provided to the target audience?
- (2) What were the strengths and weaknesses of the intervention? (e.g., were trainers well-qualified? was documentation pertinent? was equipment used properly?)
- (3) How many and which members of

- the target audience experienced the intervention?
- (4) What role did the different parties play in the implementation of the intervention?
  - (5) Did some workers reject the intervention?
  - (6) How did implementation of the intervention deviate from expectations? Why?

With respect to intervention *effectiveness*, research studies (also referred to as impact, outcome or summative evaluation studies) indicate the degree of effectiveness of an intervention under real-world conditions; they answer such questions as the following:

- (1) To what extent does the intervention reduce worker exposure to psychosocial risk factors?
- (2) To what extent does the intervention reduce psychological distress or work disability for mental health problems?
- (3) What are the social and economic consequences of the intervention on work-related injuries and illness (e.g., workers' compensation, medical and indemnity costs, quality of life)?
- (4) What changes were observed in workers' knowledge, attitudes or behaviour as a result of the intervention?

Given the major changes in the organization of work in Canada during the past decades (see NIOSH 2002),<sup>1</sup> the *second-most important objective* of a long-term research agenda on mental health and the workplace should involve the collection of data that will provide a better understanding of the prevalence of work organization

risk factors, how they may be changing and how they affect mental health over time (Landsbergis 2003). There is a need for periodic national surveys similar to the National Quality of Employment surveys conducted by the US Department of Labor between 1969 and 1977 or the European Union surveys of working conditions, which have been carried out at five-year intervals since 1990. As suggested in the Tokyo Declaration, these surveys should monitor<sup>2</sup> organization restructuring and downsizing, the frantic pace of work and personal life, the erosion of leisure time and/or the blending of work and home time, new employment practices such as use of contingent workers, new management models with a greater emphasis on team-work, just-in-time and total quality management, changing workplace, etc. (cited in Landsbergis 2003).

Lastly, the *third objective* of a long-term research agenda on mental health and the workplace should be to understand the effects on mental health of prominent trends in organizational practices, such as restructuring, lean production and flexible staffing, all of which result in precarious employment and all of which may pose special risks for women, immigrants or ageing workers. Special attention should be given to factors, such as trust in management and organizational fairness, that could serve as buffers against psychological distress when sweeping changes are made to the organization of work. Some authors have also argued that new systems of work organization offer increased flexibility, responsibility and learning opportunities (Landsbergis 2003). Regarding the type

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<sup>1</sup> Prevention of psychosocial risks and stress at work in practice, issue 104, 2002 <<http://osha.eu.int/publications/reports/104/en/stress.pdf>>

<sup>2</sup> A consensus document produced by occupational experts from the European Union, Japan and the United States, cited in Landsbergis, 2003.

of employment and mental health, an analysis of the European Surveys on Work Conditions have shown that non-permanent workers reported higher percentages of dissatisfaction but lower levels of stress and that people working for small employers were more likely to report fatigue and stress but less likely to report dissatisfaction.

On the other hand, research we conducted in order to understand how intermittent work is experienced by people and how it affects life and health have shown that some people perceive their unstable situation as having certain advantages, whereas others experience a deep sense of loss of control over their lives. To understand why some people cope well with temporary or precarious employment while others do not we need to examine how and under what conditions work experiences may be “salutogenic” by acting on the construct of identity and reinforcing self-esteem and confidence in one’s abilities. Similarly, we need to gain an understanding of the mechanisms of work that create social isolation, which is a major determinant of mental health problems (Vézina et al. 2004).

### Concluding Remarks

Prevention of mental health problems in organizations is a major challenge. Ignoring this issue because it is too complex to tackle would increase the fragility of the workforce, which will soon present important problems of relief or replacement due to the attrition of the ageing population. One final, or *complementary objective*, of a long-term research agenda on mental health and the workplace is further research and accurate data collection on the importance of the considerable direct and indirect costs to business,

workers and society of work-related stress. Such information could prove useful in convincing decision-makers of the necessity of investing in the creation of a healthy workplace. Many experiments have shown that stress prevention enables organizations not only to reduce or contain the costs of poor employee health, but also to maintain and improve organizational health and productivity (Cooper et al. 1996). It is worth mentioning that various studies of practices in successful organizations have identified attributes that benefit both the company and the employees’ mental health, namely employment security, self-managed teams and decentralized decision-making, extensive training, reduced status distinctions and barriers (including dress, language, office arrangements and wage differences between levels) and extensive sharing of financial and performance information throughout the organization (Pfeffer 1998). All these psychosocial factors show that work has to remain human and that production ethics must respect the psychological integrity of individuals.

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