Collectivism and partnership, the main drivers of workplace social innovations

Paul-André LAPOINTE Professor Industrial Relations Department, Laval University, Québec, QC, Canada G1K 7P4

Which are the main drivers of organizational changes (or workplace innovations) and how collectivism is it related to them? This guestion raises a fundamental debate among academics and practitioners in the field of industrial relations and organizational theory (Bernoux 2004, Demers 2007 and Heery 2008). According to contingency theory, organizational changes are considered as necessary adaptations to exogenous changes like technological changes and globalization (Donaldson 1996). Given these constraints, social actors make rational choices based on gains and losses they would do from the implementation of changes (Cooke 1991). Sharing rational choice assumptions but opposed to the strong determinism involved in contingency theory, the strategic choice approach claims for more social actor freedom and contends that management choices matter (Child 1997). Kochan, Katz and McKersie, in their seminal book (1986), expanded this approach to the field of industrial relations. They emphasize the role of the management values concerning the decisions to implement organizational changes (Osterman 1994). For all these approaches, collectivism is either considered as unimportant factor or as a barrier (Godard and Delaney 2000). To go beyond this limited view of collectivism, other researchers have introduced the role of unions and labour relations as important factors in the dissemination of organizational innovations (Cutcher-Gershenfeld 1991, Eaton 1995 and Frost 2000). In their perspective, unions can choice between cooperation and conflict when facing organizational innovations implemented by management. More recently, some European researchers and union activists applied the strategic choice approach to the union strategies and put forward the concept of "strategic unionism" (Huzzard and al. 2004).

Each of these approaches emphasizes on either one or the other factor associated to organizational changes. Taking into account all these approaches certainly permits to address all the relevant factors. But, they are unequally developed and the factors they address are given unequal importance. In this paper, we would like to contribute to the development of those approaches that emphasizes the role of unions and labour relations in the adoption and diffusion of social workplace innovations. On the basis of a survey conducted among plant manager in manufacturing sector establishments in the province of Québec (Canada), we will address the question of the determinants of workplace organizational innovations. More precisely, we will divide organizational innovations in two categories according to whether they belong to the production and quality management and organizational flexibility (category 1) or direct participation (category 2) and compare unionized and non unionized plants. In this way, we believe it will be possible to identify different patterns or logics of organizational innovations.

OGRANISATIONAL INNOVATIONS : TYPES, DETERMINANTS AND PATTERNS

New technical-productive paradigm and direct participation

Far from constituting a single homogeneous entity, organizational innovations differ from one another according to the dimension of the work organization taken into account, the extent of their departure with Taylorism and the extent to which they spread. Innovations applied to the management of production and quality may seek to reduce cycle time and inventory, increase standardization of processes and improve the quality of processes and products. Functional flexibility (multi-skilling and task rotation) focuses on the reduction of the horizontal division of labour. Direct participation schemes try to give employees greater responsibility in the organization of their own work and to give them a say in the improvement of the efficiency and quality of production processes. Direct participation does not only apply to individuals; there can also be collective mechanisms for participation, such as teamworks and problem-solving groups.

Organizational innovations differ from Taylorism to varying extent. Production and quality management innovations and functional flexibility are actually an extension of the industrial rationalization initiated by Taylorism (Bélanger, Giles and Murray 2002; Coriat 2001 and 1997; and Freeman and Soete 1994). On the other hand, direct participation represents an innovation which is particularly unlike Taylorism and allows to distinguish innovative workplaces from one another (Edwards *et al.* 2002, Appelbaum *et al.* 2000 and Heller *et al.* 1998). Finally, the first group of innovations (production and quality management innovations and functional flexibility) is generally more widely adopted than direct participation.

Based on the aforementioned criteria (dimensions of work organization to which they apply, their departure with Taylorism and the scope of their diffusion), it is possible to separate organizational innovations into two categories: (i) the new technical-productive paradigm (production and quality management innovations and functional flexibility), and (ii) direct participation (teamworks and problem-solving groups).

External context and social dynamics

To explain the adoption of organizational innovations in the workplace, the literature generally draws on two main types of factors, the external context and business strategies (Betcherman 1999). Contingency theory refers to factors in the external environment or factors beyond the reach of the social actors. In this category, the principal factors are technology, the market, and the size and age of the company. For example, it hypothesizes that the most innovative businesses - those that make extensive use of new forms of work organization - are young, small-size enterprises making intensive use of advanced technology and operating in markets that are highly competitive and very much exposed to globalization, (Mintzberg 1984 and Freeman and Soete 1994). To nuance the determinism associated with external environmental factors, the authors of the theory of strategic choice in the field of industrial relations (Kochan, Katz and McKersie 1986, Kochan and Osterman 1994 and Cappelli et al. 1997) draw on management strategies and values. They give social actors, in this case, managers, a decisive role in introducing organizational innovations. Consequently, managers who opt for a strategy oriented toward product and process innovation, guality and specialization, and who are concerned about the wellbeing of their employees, will choose flexible forms of work organization based on greater direct participation and the delegation of responsibilities to employees.

However, recognition of social actors and their strategies is, in strategic choice approach, inadequate because it fails to embrace some of the most relevant dimensions belonging to the social dynamic dimensions associated to organizational innovations in the workplace (Bernoux 2005 and Demers 2007). Indeed, this approach is limited to a single actor and based only on management business strategies and values. To overcome these approach limits, one needs to introduce a role for the union and labour relations in unionized plants. In addition, it's also important to use a more sophisticated form of managerial action and take into account human resource practices, including the guarantees provided to workers if innovations are adopted.

Taking into account the relative impact of external factors and the social dynamics better reflect the diversity of workplaces in regard to organizational innovation adoption. Indeed, the dominance of external factors would lead to homogeneity of workplaces, depending on their degree of exposure to globalization and the sophistication of the technologies used. By contrast, factors associated with the social dynamics account the diversity of workplaces, depending on social actors strategies and actions. This approach permits also to compare unionized plants with non-unionized plants.

DATA AND VARIABLES

Data

This paper rests upon a telephone survey of plant managers in Quebec's manufacturing sector establishments of 50 employees or more, conducted in 2001 by a research team, funded by Social Sciences and Humanities Research of Canada¹. From a population of reference made up of 2,042 plant managers, 712 completed questionnaires were returned (392 from managers of unionized establishments and 320 from managers of non-unionized establishments), that is to say a response rate of 34.9%. The statistic analysis, whose results are presented in this paper, focuses on 523 cases (297 unionized plants).

The questionnaire comprised about 130 statements referring to a variety of organizational innovations, as well as to the context, human resource practices and labor relations (Cucumel *et al.* 2002). Using OLS regressions analysis, we can evaluate the relative contribution of independent variables (like technology, globalization, management values, human resource practices and partnership) to the adoption of workplace innovations gathered in two classes, technico-productive paradigm (like just-in-time, quality certification, organizational flexibility and so on) (Freeman and Soete 1994) and participation (problem-solving groups and work teams) (EPOC 1997).

Dependent variables

Our survey focussed on 11 organizational innovations grouped into three categories (Table 1). Six innovations involved production management and quality management: just-in-time methods, set-up time reduction, programs for managing and planning production, statistical process control, cellular manufacturing and quality certification. Three innovations were related to organizational flexibility: flexibility among trades, flexibility among production tasks and flexibility between trades and production tasks. Lastly, two innovations involved participation: problem-solving groups and work teams.

¹ The research team was composed of Guy Cucumel (École de gestion, UQAM), Paul R. Bélanger (Sociologie, UQAM), Benoît Lévesque (Sociologie, UQAM) and the author.

Table 1
Diffusion of organisational innovations
(Dependent variables)

	Non -unionized plants (N=226)	Unionized plants (N=297)
Quality management and production management		
Just-in-time	60,6	60,3
Set-up time reduction	53,5**	64,0**
Production management and planning programs (MRP : Manufacturing Resource Planning)	62,0	68,7
Statistical process control	54,0**	62,6**
Cellular manufacturing	40,7***	29,0***
Quality certification	57,5	62,3
Flexibility		
Unskilled workers		
Presence	76,6	74,1
50% or more	32,7*	25,6*
Skilled workers	81,0**	72,7**
Unskilled / Skilled workers	67,3	68,7
Participation		
Problem-solving Groups		
Presence	62,4	66,3
50 % or more	19,0	19,5
Teamworks		
Presence	50,9**	42,1**
50 % or more	13,2	9,8

T-Test : significance is reported at the 0,01*** level, the 0,05** level and the 0,1^{*} level.

To measure the presence of flexibility at the plan level, three questions were asked:

- Trades : "Can employees in one trade perform the tasks associated with another trade (e.g. can mechanics perform the tasks of welders)?".
- Production: "In your plant, what is the approximate percentage of production employees whose work fits the following description: production employees who rotate from one employment position to another"? (We recoded the answers into two categories: less than 50% = 0, and 50% or more = 1).
- Production/Trades: "As part of their normal work activities, do production workers carry out minor maintenance work or equipment/machine repairs?".

To measure the presence of participation, two questions were asked:

• Problem-solving groups: "In your plant, are there groups in which employees discuss problems concerning quality or production (such as quality improvement

groups, problem-solving groups, continuous improvement groups, Kaizen groups or quality circles)?".

• Teamworks: "In your plant, are there schemes in which production workers take on certain responsibilities in organizing of their own work? (e.g. teamworkd, semiautonomous teams, self-managed teamworks, etc.) (N.B. not including quality improvement groups)".

Independent variables

In regard to technical productive paradigm, the model of analysis includes the following variables (Table 2). Size and manufacturing sectors² are considered as control variables. Automation and skills are indicators measuring the technology sophistication. Automation is more developed in unionized plants than in non unionized plants. The property of the plant by a multinational firm is a proxy for the globalization. We also have to notice that the presence of multinational firms is stronger in unionized plants.

Concerning social dynamics, the following variables are taken into account : business strategy based on employee relations, collective incentive pay, training and garantees in case of innovations. For unionized plants, two other factors are added : union strategies and the presence of union management committees. Some factors need more details.

In general, human resource management practices are considered intermediate variables. There are models of analysis where these practices are inserted between organizational innovations and performance; they enable the innovations to have (i) a longer-lasting impact and (ii) a more consistent impact on the plant's economic performance (Kochan and Osterman 1994, Ichniowski *et al.* 2000, Cappelli and Neumark 2001). One reason for this is that the factors determining human resource management practices simultaneously determine organizational innovations (Gittleman *et al.* 1998). However, other studies on the adoption of innovations take a different view. In a review of specialized literature on the factors that affect innovation, including organizational innovation, Reed has classified the factors that researchers utilize the most frequently. He found that out of a dozen factors identified, those linked to human resource management ranked fourth (Reed 2000). More recent studies on the adoption of organizational innovations view human resource management practices, specifically training, as a determinant of organizational innovations (Brown *et al.* 2007, Erickson and Jacoby 2003).

Furthermore, it is rare in studies on the adoption of organizational innovations to take into account guarantees provided in the event of change. In general, studies use the commitments regarding job security. The Osterman studies do not establish a correlation between these commitments and the adoption of organizational innovations (Osterman 1994 and 2000). On the other hand, Pil and MacDuffie maintain that the compensations given, especially regarding job security, greatly promote the introduction of innovations (Pil and MacDuffie 2000). The link between guarantees and innovation is therefore an empirical question. The "guarantees" factor is measured by the presence of four items: guarantees against subcontracting, guarantees of new investment, training guarantees and guarantees against lay-offs. These guarantees are more or less substitutable for one another in the effort to ensure greater job security. We also measured the strength of

² Employment-intensive tertiary production (includes activities associated with the production of textiles, clothing, food beverages, leather, footwear and furniture) constitutes the reference category in the recoding of the manufacturing sector into dummy variables.

Table 2Definition of independent variables and means

Independent variables		Means	
Title	Definition	Non- unionized Plants (N=226)	Unionized Plants (N=297)
Size	Total of employees	167,26*** (76,53)	206,4*** (80,5)
PriManu	Primary manufacturing (sawmills, pulp and paper, oil, clay, glass, cement and concrete, non-metallic mineral products, primary metallurgy)	,17*** (,37)	,31*** (,46)
SecManu	Secondary manufacturing (chemical, plastic, rubber and metallic products)	,21 (,41)	,22 (,42)
CapTert	Capital-intensive tertiary manufacturing (printing, machinery and equipment, electronics and informatics, land and sea transportation equipment and aerospace)	,27*** (,45)	,17*** (,38)
Automation	Percentage of unskilled workers working on computers, robots or programmable controls	,17*** (,23)	,26*** (,31)
Skills	Time required by a new unskilled worker to acquire the abilities to carry out the normal production tasks (less than two weeks = 0; between two weeks and one month = 1; more than one month = 2)	,59 (,39)	,56 (,38)
MNF	Property of a multinational firm measured by the number of subsidiaries and the location of the MNF head office	,20*** (,35)	,37*** (,38)
BusStrat Yees	Business strategy based on "employee relations". Importance of this strategy inside of the plant's general business strategy (essential = 4 and insignificant = 0)	,75 (,25)	,73 (,24)
Coll Incentive Pay	Presence of four collective schemes of incentive pay: knowledge-based, profit-sharing, team bonuses and stock options	,29*** (,25)	,22*** (,23)
Training	Indicators measuring the annual hours of training per worker	,52 (,26)	,55 (,26)
Guarantees	Construct of four dimensions measuring the guarantees given to workers in case of change	,26*** (,21)	,34*** (,23)
UnionStrat	Weighted average of union strategies in four categories of organizational innovations (scale = 0,25 to 1,00)	,74 (,19)	
UMC	Number of union management committees	,50 (,22)	

T-Test : significance is reported at the 0,01*** level, the 0,05** level and the 0,1^{*} level. Standard deviations are reported in brackets. these commitments by ascertaining in each case if it was a verbal or written commitment³.

As with the case of human resource practices, we added labour relations and union strategies to the list of factors that contribute to the adoption of organizational innovations. However, few quantitative studies, aside from those carried out by Eaton (1994 and 1995), have dealt with the role of labour relations and union strategies in the adoption of innovations. Eaton concluded that union involvement and good labour relations were closely associated with the continuity of organizational innovations. More recent research has demonstrated that there is an important correlation between the presence of joint committees and the adoption of innovations in the workplace; the research was based on a sample of 112 collective agreements signed in Canada in 1994 in bargaining units of 500 employees or more (Balkin et al. 2001).

Questions were asked to the respondents concerning the presence of seven different union-management committees in the plant (Table 3). Union strategies, the final factor

Table 3Diffusion of union management committeesUnionized plants(n=297)

- Technological change 25,6
 - Labour relations 70,7
 - Task classification 27,6
 - Health & Safety 99,0
- Quality or continuous improvement 52,5
 - Job design 18,5
 - Training 52,9
- Average number of union management 3,46

taken into account in this paper, consisted of indices measuring union positions on the same changes adopted when an organizational innovation are implemented. Respondents were asked to select one of the following four positions: opposition (1), abstention (2), passive support (3) and pro-active support (4). We constructed a weighted average for the union strategies, taking into consideration the presence of the four changes listed⁴.

RESULTS

The findings are presented according to the union status of the plant and to each category of organizational innovations. Consequently, there are four models of regression (Table 4). Different patterns of innovation are observed, even if some similarity exists. The only common factor at all patterns is collective incentive pay, but its importance varies according the patterns. It is more strongly associated to participation schemes in non unionized plants than in other patterns.

³ The "guarantees" factor is the sum of the commitments made (none = 0, verbal commitment = 1 and written commitment = 2) for each of the guarantees considered. ⁴ The weighted average is thus calculated as follows: the sum of the scores obtained for each of the

⁴ The weighted average is thus calculated as follows: the sum of the scores obtained for each of the changes, divided by the number of types of changes for which the respondent indicated either an approach for introducing innovations or a union strategy.

Table 4

OLS Regression estimates of organizational	innovations
(Standardized regression coefficients -	- Beta)

	Non-unionized plants		Unionized plants	
	(n=226)		(n=297)	
	Model 1	Model 2	Model 3	Model 4
	TPP	Partic	TPP	Partic
Size	,077	-,033	-,046	-,174***
	(,000)	(,000)	(,000)	(,000)
Automation	,120*	,047	,161***	,059
	(,005)	(,003)	(,003)	(,002)
Skills	-,010	,164***	,018	,066
SKIIIS	(,301)	(,185)	(,301)	(,162)
MNF	,110*	-,066	,146**	,057
	(,178)	(,110)	(,135)	(,082)
BusStrat Yees	,166***	,083	-,043	,020
Dussilal rees	(,160)	(,099)	(,135)	(,082)
Col Incentive	,160**	,287***	,164***	,122**
Pay	(,123)	(,076)	(,106)	(,064)
Training	,163**	,134**	-,026	,092
	(,116)	(,072)	(,107)	(,065)
Guaran	,080,	,120*	,072	,106**
Guaran	(,073)	(,045)	(,052)	(,031)
UnionStrat			,016	,115**
UnionStrat			(,127)	(,077)
UMC			,263***	,302***
			(,067)	(,041)
R ²	,210	,189	,215	,243
Adjusted R ²	,169	,147	,179	,208
F Value	5,123***	4,493***	5,950***	6,969***

TPP= Innovations forming part of the new technical-productive paradigm (production and quality management innovations and functional flexibility).

Partic = Innovations related to participation (problem-solving groups and team work).

Control for manufacturing sectors. None of these factors is statistically significant. OLS regressions analysis (linear multiple regression with SPSS software) is used

because the dependent variables are continuous. Technical productive paradigm is measured on a scale of 0 to 9, corresponding to the sum of the presence (1) or the absence (0) of each innovation. It's the same situation for participation, except that the scale varies from 0 to 4 according to the following coding : absence = 0, less than 50% workers involved =1 and 50% or more workers involved = 2 for each of participation schemes (see table 2).

Significance is reported at the 0,01^{***} level, the 0,05^{**} level and the 0,1^{*} level. Standard deviations are reported in brackets.

The first model concerns the technical productive paradigm in non unionized plants. Some findings are relevant. Business strategy focused on employees appears as the most important factor, followed by the factors belonging to human resource management, that is, training and collective incentive pay. Two of the three factors associated to external context (automation and FMN) also play a significant role.

Participation in non unionized plants represents the second model. In this case, the three practices of human resource management take the dominant role. One can observe that guarantees are significantly associated to participation. Finally, technology is also an important determinant, represented here by the time required by a new unskilled worker to acquire the abilities to carry out the normal production tasks.

With regard to the third model, the technical productive paradigm, social dialogue, taking place in union management committees, is playing the first role. Next, collective incentive pay is following. Two factors, belonging to the external context, automation and MNF are also exerting a significant influence on the adoption of the technical productive paradigm.

The last model addresses the factors related to direct participation in unionized plants. Among the significant factors, those pertaining to social dynamics are the most important. Social dialogue in union management committees and appropriate union strategies reflect the role of labour relations when it comes to adopting participation schemes in unionized plants. Size is the only significant factor of the external context in this model.

The models of regression reflect different logics of innovation, each one associating specific factors to one category of organizational innovations. The first logic relates the adoption of the new technical-productive paradigm with the dominating influence of contextual factors. The second logic establishes a strong link between the adoption of participation and social dynamics. The contrast between these two logics is easily noticeable in unionized plants, given the importance of the factors belonging to labour relations. Nevertheless, the contrasted logics can be also observed in non-unionized plants.

DISCUSSION

In relation to the existing literature, we can say that contingency and rational choice theories are useful, but only to explain the adoption of technical productive paradigm. They are also more relevant in non unionized plants than in unionized plants, that is to say that they are not very well fitted to take in account the social dynamic which is well developed in unionized plant and further related to participation. In these cases, others approaches seem more suitable, but not without great limitations, especially concerning the strategic choice. Contrary to the assumptions made inside the scope of this approach, we find a significant relation between organizational innovations and management values, illustrated by business strategies focused on employee relations. Furthermore, the strong attention given to the management strategies omit the union role; in this respect, the presence of union or its absence is the only factor considered and usually it is assumed that union presence is either a factor without significant relations or a simple barrier to the adoption of innovations. Following the pioneer work of Eaton (1994 et 1995), our results show that it is not the simple presence or absence of union that makes a significant difference; what matters is the strategy union adopts dealing with organizational innovations. At this point, the "strategic unionism" approach is very well fitting, but according to our results, it needs some improvements towards varieties of union strategies (Boxal 2008) and their relations to social innovation adoption (Frost 2001 et 2008). Finally in spite of hostile national institutional context,

social dialogue matters in workplace and plays a significant role in social innovations at work, especially with regard to participation.

Our research results confirm the importance of social dialogue in the adoption of innovations in unionized workplaces. Thus, union management committees have an important impact. Whatever the type of innovations, it is the leading factor. Union management committees promote an acceptance of change by providing opportunities to exchange ideas. They bolster their efforts by encouraging consensus building and participation in joint decision taking on various aspects of work and innovation. In committees, union representatives influence innovation by taking worker interests into account more effectively. In so doing, they lower resistance to change. They may even encourage their members to get more involved, since the innovations are then more likely to have more a positive impact. Concretely, innovations can mitigate work intensity, or at least counterbalance it through benefits linked to greater security, skills and autonomy. Plant managers are more likely to introduce innovations if they feel that this action will ease relations with the union or even make possible further collaboration. In sum, joint committees go to the heart of the social dynamic in unionized plants. The major role that joint committees play in the adoption of innovations provides solid confirmation that indirect participation complements - or is perhaps even a sine qua non of - direct participation.

Indeed, to introduce direct participation a greater number of union management committees should be present. However, other things are required as well: guarantees if changes are made and pro-active union strategies. For employees to get more involved in their work, especially in participatory mechanisms (on the one hand, by sharing their know-how and improving the methods of problem-solving groups and, on the other hand, by assuming greater collective responsibility – as part of teamworks – in the organization of their work), they must be compensated with additional negotiated safeguards. These negotiations can take place in union management committees, which can also follow up the operation of the participatory mechanisms. These results are highly consistent with those already obtained by the numerous studies conducted in Quebec on partnership and participation (Harrisson and Laplante 2002, Lapointe 2001 A and B, Lapointe, Lévesque et al. 2004), and by studies conducted elsewhere (Van Gyes 2003, Rubinstein and Kochan 2001). However, they are inconsistent with the results presented by Osterman, who suggests that participation and workplace innovations in the United States are adopted without guarantees and without partnership (1994 and 2000). This difference doubtlessly reflects different methodologies, given that Osterman does not differentiate between unionized plants and non-unionized plants. In addition, it stems from differences between American and Quebec capitalism, exemplified in particular by the difference in union density, which is about 40% in Quebec and slightly less than 10% in the United States (Bélanger, Lapointe and Lévesque 2002). This question requires detailed analysis beyond the scope of the present article.

CONCLUSION

In conclusion, we would like to underline some limits of the research findings presented in this paper and raise some questions for future research. With regard to the first point, it's important to remind that quantitative researches in social sciences is encountering great difficulties in understanding the complexity of the studied phenomena. The portion of the reality which we can explain is too often limited and this is especially the case in this research, given the small size of the sample and the relatively low scores obtained by the models of regression. Thus, we need to be very cautious with regard to generalization of the results. It's also difficult to establish clearly the direction of the causality. It's then better to speak of association between social phenomena instead of causality relations between independent variables and dependent variables. Another limitation is the fact that the survey on which the analysis rests upon was made nearly 10 years ago and therefore the reality measured at that time would no longer correspond to today. Finally, the categories used to understand and measure organizational innovations and factors associated are limited. In the same manner with which we supported the diversity of innovations, we could argue that participation is itself a diverse phenomenon which could be divided in different categories according the extent of autonomy and power delegated to workers. These different types of participation could be related to different factors and logics.

In closing, we wish to draw attention to some issues that deserve to be better known. Participation is the first one, as aforementioned in the last paragraph. Another issues concerns the paradox associated to the diffusion of organizational innovations which are supposed to bring improvement of social and economic performances and which are lightly diffused. We need to better understand the dynamic of diffusion and the obstacles which impede it and the factors which support it. In this respect, taking into account institutional context is very important and international comparisons would be very useful. Moreover, the research results are mixed concerning the relations between organizational innovations and social performances (in terms of work and employment conditions) and economic performances (for a recent literature review, see Buhai and al. 2008, Frost 2008 and Gonzalez 2009).

In spite of all these reserves expressed above, we would like to end with a more positive note. When they are supported by partnership and proactive union strategies, social innovations and, most specifically, participation, go along with improvement of social and economic performances (Foley and Polanyi 2006, Lapointe 2007, *Transfer* 1/2008 and Valeyre 2006 and 2007). In identifying partnership and proactive union strategies as a main driver of social innovations and participation, our results contribute to strengthen the emphasis of collectivism in workplace. Instead of viewing "back to collectivism" as only a mean to protect worker against the degradation of their working conditions, they make the point that collectivism can also be proactive in promoting social innovations that enhance workplace democracy, working conditions and economic performances.

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