

Innovation and Inter-Firm Institutions

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Abstract

By developing the insights of Nelson and Winter (1982), this paper provides an explanation of the firm as a depository and a generator of capabilities, that refers to the firm's ability to create and utilize knowledge. Given the importance of complementarities among individuals in the accumulation, generation and eventual valorization of knowledge, the firm may be the better suited institution to manage such complementarities in a market economy. Furthermore, the firm needs to assess not only whether to rely upon internal knowledge in the production of new knowledge but also try and valorize external knowledge, through alliances with other firms (employer organisations) and co-operation with individual workers and unions. Innovation may be promoted by dense networks of (strong) ties - provided by unions - among workers. So, rather than a constraint to change, unions may come to be framed as important partners in the drive to maintain workplace competitiveness, promote innovation and achieve social justice through his internal and external brokerage functions.

1 Introduction

By developing Nelson and Winter (1982) insights, this paper attempts to explain how the transmission and enhancement of competencies provide an alternative explanation of the existence and relative efficiencies of organisations. Organisational learning should represent a major, if not the major, theme in the systemic analysis of the firm in economic theory. Associated with evolutionary economists, scholars of resource-based theory (Penrose, E. 1959, Chandler, A. 1990 and Odagiri, H. 1984), emphasize the uncertain environment in which managers and workers interact and focus their analysis on the role of competence and collective knowledge in the definition of the firm under the constraint of the resources necessary to co-ordinate the diverse activities within its borders. In this theory, the firm is primarily a governance mechanism for the production of knowledge (Antonelli, A. 2003).

While individual knowledge - human capital - entails 'what you know', collective knowledge based on workplace trust involves 'who you know and trust, and what they know'. More formally, trust relations are embedded in the network of contract and in the structure of employment rules and affect collective learning in the firm (Portes, A. 1998). More precisely, personal trust relations enforcing informal employment rules involve framing and mobilizing members connections within and between its various units and with outside organisations to gain access to a variety of resources (see Knoke, D. 1999). Given the importance of complementarities among individuals in the accumulation, generation and eventual valorization of knowledge, the firm may be the institution which is better able to manage such complementarities suited in a market economy. Furthermore, the firm needs to assess not only whether to rely upon internal knowledge in the production of new knowledge but also try and valorize external knowledge, through alliances with other firms (for example employer organisations) and co-operation with individual workers and unions.

In the analysis of the conditions governing the generation and the distribution of new knowledge within the firm - that is much more than just a nexus of contracts -, the industrial relations system is here viewed as a relational and institutional structure where inter-firms institutions (concertation, collective bargaining and other rule of the games) and social relations (trust or power relations) may shape the actual speed and rate of introduction of new products, services, methodologies and technologies. Labor organisations may thus foster trust, promote innovation and improve the efficiency of firms, but such effects depend on their type of approach. When such an approach is cooperative, i.e. it incorporates a 'conscious brokerage strategy that seeks to build bridges among workers and between workers' (Jarley, P. and Jonson, N. 2003), then it is most likely that economic productivity and innovative performance of the firms will be higher than in the non-cooperative approach. Interactive, coordinative and synergetic dynamics of the exchange of immaterial resources between employer organisation and unions arise from the logic of concertation and of the worker's participation in the governance of the firm and enhances the generation and the diffusion of innovation. The success of the concertation requires intense and constant coordination within organisations at each levels of their membership and regard not only the formal agreement but also the informal 'rules of the game'. In this perspec-

tive, concertation and worker's participation means a reduction of uncertainty in industrial relations, which may help to create an institutional framework that reduces the risk of unpredictable cooperation and support a non-conflictual generation and distribution of resources within the firm (Vatta, A. 1999). Most IR scholars would argue that the role of trade unions goes beyond the simple 'evening up' of the economic power disparity between employer and employees and it concerns a broad range of industrial, political, social, economic and business matters. So rather than a constraint to change, unions may come to be framed as an important partner in the drive to maintain workplace competitiveness, promote innovation and achieve social justice through his internal and external brokerage functions.

In summary, this paper, could be viewed not only as a theoretical attempt to understand the role of interfirm institutions in the nature of the firm, but also as a tool to analyse the dynamics of labour movement by stimulating some new conceptual and speculative thinking about their main function, character and future purposes (Marsden, D. 1999). Precisely, in the next section, I provide an explanation of the firm as a depository and a generator of *capabilities*, that refer to firm's ability to create and utilize knowledge. In the third section, I focus on the informal normative structure into which organisational knowledge is embedded and, in the fourth section, I study how labour institutions may affect such a structure. In the fifth section I analyse how innovation may be organised in a flexible and co-operative industrial system and finally I provide some research and policy implications.

2. On the role of core capabilities and work process knowledge in the theory of the firm.

While Coase (1937), Williamson (1975, 1985, 1996) and others analyse the nature of the firm in terms of transaction costs and the control of opportunism, Nelson and Winter (1982) focus on the capacity of the firm to accumulate, elaborate and use information by acquiring different abilities. In other words, they highlight the organisational capacity of the firm to respond automatically to market changes (or the change of the firm itself), by following *routines*, or fixed rules (procedures).

The firm is defined as a system of standard administrative conditions and rules that promote the capacity of each of its members to interpret the flow of informational messages. When the internal objectives change, the rules of standard administrative behaviour are varied through the application of "super-rules" that define when and how to modify these *routines*. Business firms are organisations that know how to do things: "*a firm's capability lies upstream from the end product – it lies in a generalizable capability which might find a variety of final product applications*" (Nelson, R. and Winter, S.E. 1982:45). In fact, though this is not much emphasized in textbooks, a particular firm at a particular time is a repository for a quite specific range of productive knowledge, a range that often involves idiosyncratic features that distinguish it even from superficially similar firms in the same line(s) of business. The decisional capacity of the firm is founded on the existence of organisational knowledge and on the presence of efficient rules that allow the firm to survive. But these organ-

isational capabilities cannot be reduced to the simple sum of capabilities of individual members. In particular, the coordination displayed in the performance of organisational routines is the result of practice and of shared experience of organisation members. In the resource-based theory, the firm may be defined as a *bundle* of resources (Penrose, E. 1959, Chandler, A. 1990 and Odagiri, H. 1984) and as an institutional locus of the generation and valorisation of knowledge immediately relevant for the economic action, at least in market economies. Organisational knowledge is generated by means of integration of learning processes and formal research and development activities. Such a theory focuses on the dynamics and the characteristics of learning processes, such as learning by doing and learning by using. Here, organisational learning is seen as a collective process that involves individual elements but that depends on the collective context into which knowledge is generated: *learning to drive, for example, is an individual process, yet many of the key routines we are taught have a collective outcome. To enter a roundabout, we learn to give priority to vehicles coming from the right (that is, in Britain, where vehicles drive on the left). This is a simple routine, but it ensures a collective outcome that is also learned, namely a smooth flow of traffic through the road system. It only works if every driver respects it* (Marsden, D. 1999:250).

Furthermore, the characteristics of knowledge, such as appropriability, cumulability and complementarity, and its state, whether tacit, articulable or codified, play a major role in the understanding of the architectural design of the firm and the combination of activities retained within its borders. Parallel to knowledge, capability is a central argument in the theory of the firm. *Capabilities* refer to the firm's ability to create and utilise knowledge and are defined in terms of problem-solving abilities and makes it possible for the firm not only to know-how, but also to know-where, to know-when, and to know what to produce, to sell, to buy, to coordinate and to innovate. Thus, in this approach, the firm may be considered in this approach as a depository and a generator of *capabilities*. Capabilities are indispensable to survive and some of them are "core" in the sense that they distinguish the firm from its competitors. According to Leonard-Barton (1995), *core capabilities* consist of four components: (1) Employee knowledge and skill; (2) physical technical systems; (3) managerial systems (such as education, rewards, and incentives); and (4) values and norms (that determine what kinds of activities are tolerated and encouraged). Competitive advantage stems from the synergy between these components. According to Leonard-Barton, new product development becomes the key process through which firms can develop and renew their core capabilities. She distinguishes four new-product/new-process development "activities" that form a recurring cycle: (1) shared, creative *problem solving* (to produce current products); (2) *implementing and integrating* new methodologies and tools (to enhance internal operations); (3) formal and informal *experimentation* (to build capabilities for the future); and (4) *importing knowledge* from the outside. The model proposed by Leonard-Barton suggests that the theory of innovation needs to expand the core capability to the *whole system* of knowledge management – not either the technical knowledge or the business process alone (Leonard-Barton 1995:272). The idea that members of the organisation need to understand the work process in the company as a whole is more suitable in flexible organisations characterized by the

widespread diffusion of ICTs and the growth of sectors other than manufacturing. Instead, when work takes place in the system of mass production of Henry Ford and it is designed on the basis of scientific management associated with Frederick Taylor, shop floor employees need very little underpinning knowledge to perform their narrow jobs. In such an approach, a hierarchical command-and-control system ensures that any necessary co-ordination of functions is carried out by supervisors and managers and that the job of shop floor employees may be simplified in straightforward routines. In other terms, work is designed in the “office” by managers and highly technical staff, while the productivity operations themselves are carried out in “the works” by employees with relatively poor qualifications. There is a strict division of labour vertically between grades of staff and horizontally between departments. However these production systems that have dominated European Industry for the past 100 years are now becoming obsolete. The concept of *work process knowledge*, that is the English translation of the term *Arbeitsprozesswissen* coined by Wilfried Kruse (1986), on the other hand, is a way of representing the kind of capabilities needed under new working conditions. Companies characterized by more flexible systems of continuous improvement, or which make use of ICT to link different work units into networks, need their employees to have a much broader understanding of the work process. In such context, work process knowledge may help employees to understand the interdependency of the activities of the organisation, including characteristics of the system as a whole, and to provide a high quality of service and a more flexible problem-solving process (Boreham, N. *et. al.* 2002). In summary, the theory of work process knowledge developed in this paper argues that knowledge may not be just represented through a mental model of the technical system where the worker is operating but it reconceptualises the worker as a member of broader system, where knowledge is partly owned by the individual worker and partly by the organisation. Furthermore, the work process knowledge takes place in an institutional and relational system – the firm – creating shared meanings and a common culture. While in the market there is a changing and volatile population and self-seeking (opportunistic) behaviour, in the firm (defined as an institution that promotes *trust* and *loyalty*), different actions are encouraged (Hodgson, G. 1988: 86). The function of the firm is, therefore, not simply to minimize transaction costs, but to provide an institutional framework within which, institutions play a key role in order to offer a more complete analysis of the nature of the firm. Without institutionally conditioned conceptual frameworks, a dynamic and unpredictable work environments would present a chaos of sense data in which it would be impossible for the worker to make sensible decisions and to successfully act.

3. Informal transaction rules and organisational knowledge.

Organisational knowledge is developed in a normative structure into which agents interact with each other and develop their capabilities. The normative structure is not itself entirely exogenous but emerges as a part of a process of social interaction. The agents in this framework are portrayed as having plans or strategies, but when they

enter in a network, their preferences can change because institutions (norms) and relational mechanisms, such as trust, influence them. In particular, in the firm, employment transaction rules may be considered as simple and flexible coordination norms that influence problem-solving activities and are a source of organisational learning: “*employment transaction rules (...) are key sources of organisational learning in the sense that they ensure the reproduction of the stock of organisational knowledge among new recruits and employees moving to new jobs within the organisation*” (Marsden, D. 1999:251). They affect organisational learning by the opportunities and limits they offer for cooperation and by the way they facilitate communication and interpretation and they shape work roles. The function of the firm is, therefore, not simply to minimize transaction costs, but to provide an institutional framework within which, the creation, transmission and interpretation of knowledge take place. Informal employment rules provide a different source of trust and cooperation in the workplace and promote *knowledge sharing*. Furthermore social mechanisms such as trust may co-ordinate social expectations and interactions and, may enforce the work of such institutions. Trust mechanisms can affect access to information, improve the efficiency of the organisations and facilitate coordinating action (Burt, R. 1992; Zucker, L. 1986). As a result, a sort of dynamic and bi-directional interplay between rules and social mechanism such as trust, takes place. Work tasks cannot be in detail defined because their exhaustive description is costly and they involve practical understanding of the ways of doing things, and the application of tacit knowledge. Nonaka (1998, 2001) argues tacit knowledge is not expressible, is deeply rooted in an individual’s experience and consists of highly personal insights and intuitions that are difficult to transfer to others. It incorporates one’s technical skill and know-how as well as one’s implicit beliefs about what is and what ought to be. Explicit knowledge, on the other hand, comes in codified form. “Explicit knowledge can be expressed in words or numbers, and easily communicated and shared in the form of hard data, scientific formulae, codified procedures, or universal principles” (Nonaka I, and Takeuchi, H. 1995:8). Manuals, books and lectures are typical formats for expressing explicit knowledge. Nonaka and Takeuchi (1995:231) consider the new-product development process to be the core method for creating organisational knowledge. Thus, knowledge-creation is assimilated with the development of new products and services. This is accomplished by the conversion of personal experiences (tacit knowledge) into codified practices and artifacts (explicit knowledge) and back again. According to Nonaka “knowledge conversions” are the substitution of one type of representation (e.g. descriptions and metaphors) with another (e.g. sketches and drawings). In order to place the various knowledge representations and their conversions into an organisational context, firms need to develop a systemic concept of the knowledge creation process and define a system of informal employment rules that may identify the tasks that management may assign to particular workers and define how knowledge is enacted. The presence of informal employment rules serves both to control opportunism and to provide a foundation for building the human skills and organisational capabilities of the firm. They emerge as de-personalised, simple and legitimised institutional orders. They are included in the structural arrangements of the organisations, restrict individuals’ behaviour by blinding their decisions, enforce the employ-

ment relationships and change their nature. According to Marsden, such rules have to fulfil two sufficient and necessary conditions to build a stable framework and enable an effective employment relationship: they must efficiently align worker skills with job demand and they must be sufficiently transparent to be enforceable. They must align job demands and worker competencies in a productively efficient criteria because they must permit both parties to be better off with an employment contract than under alternative forms so that both have positive reason for choosing it (Marsden, D. 1999: 31). There are two principle ways of achieving such efficiency:

The *production approach* sets off from the production side, seeking complementarities between tasks in the production system. In such approach, tasks are grouped so as to reduce time lost through worker displacements between work localizations and to limit the number of persons involved in carrying out a particular job. In this approach priority is given to technical complementarities arising out of the process of production or service provision and training is adapted, most commonly by use of on-the-job learning. This approach is well summarized by Piore that cites the aphorism of one engineer: “mould men to jobs, not jobs to men”. (Piore, M.J. 1968: 619);

The *training approach* identifies group tasks on the basis of complementarities in worker skills. In such an approach, tasks are assigned to attain high levels of skill utilisation, and competencies are organized into groups of related skills so as to minimise on the training approach. The nature of the training approach is described by Sengenberger: “...there has to be an approximate structural congruency between the division of skills (in the training market) and the division of labour or jobs in the firms participating in the occupational labour market. Each employer must design his jobs or job demands in such a way that they correspond to the range of skills offered by a particular occupation” (Sengenberger, W. 1992: 248).

The employment rules must also be *enforceable*, in the sense that they must both limit employees’ obligations and enhance flexibility for the employer. *Enforceability* concerns the transparency of task allocation rules that is an essential requirement of norms for controlling possible forms of opportunism and hence to enforce agreements. It may be achieved by means of two different ways of identifying the job tasks:

The *task-centred rules* directly identify particular task characteristics linking them to a job. They create a one-to-one relationship by defining the scope of jobs in terms of certain attributes of the tasks themselves, such as their technical complementarity as embodied in a work post’s job description, or the tools required for their execution. This is a simple and clear way of task identification but may also be a source of rigidity in task allocation;

The *function-centred rules* identify the procedure for task assignment, by focusing on the function required by the organisation. It provides only an indirect link between individual tasks and jobs, and so leaves employees in considerable doubt as to the precise demands that employees may place upon them and the limits of the management authority. Such rules have the benefit for the employer of defining jobs more closely in relation to the final output required and represent a more flexible way of tasks identification than when jobs are defined in relation to specific tasks.

Such approaches lead to different models of skill formation and job flexibility. *The production approach* is associated with internal-labour-market, where skills are not transferable between firms. *Training approach*, instead is generally related with occupational markets, where the opportunity of alternative skilled and professional jobs in other firms makes employment unstable as compared with the production approach. Moreover, the approach taken to enforceability has an important impact on the functional flexibility of those skills. *Task-centred rules* are more restrictive than *function-centred rules* and thus they provide weaker incentive for functional flexibility. Generally, it is to be expected that functional flexibility will be higher when the *function-centred rules* are in operation: “*given the greater autonomy entrusted to work groups, the greater breadth of skill becomes also greater depth, as it enables a more flexible approach to problem-solving activities.*” (Marsden, D. 1999: 253).

In summary, transaction rules give greater content to the notion of “resource based theories” of the firm and influence organisational learning partly by the way they shape work roles and partly by the incentives that they offer for flexibility and cooperation. According to Marsden, these types of rules are sufficiently robust to constrain opportunism and to provide a stable cooperation in the employment relationship. However they require social mechanisms and assistance of labour market institutions, for their operation, in the absence of which, they do not likely provide an effective way of co-ordinating the employment relationship (Marsden, D. 1999).

The interplay between inter-firm institutions and employment rules depends on the several kinds of transaction rules in force and on the different types of industrial relations systems. In other words, the function-centred rules are more dependent on cooperative relations between workers and firm than on task-centred rules, and this suggests that the former will be favoured by more cooperative styles of industrial relations. Thus, workplace trust and the flexibility of intra-firm institutions are affected by the different patterns of work organisations. Moreover, the form of employment system influences the generation and the accumulation of organisational knowledge necessary to deal with uncertainty. In order to understand this last argument, it is appropriate to do a further step and analyse the impact of labour institutions on the institutional structure of organisational knowledge.

4. The impact of labour institutions on the institutional structure of organisational knowledge

Transaction rules governing the employment relationship can emerge endogenously in the interaction process between managers and workers (Marsden, D. 1999: 23). As

particular transaction rules spread from early innovators, they come to be seen as the opposite rule of doing things. Precisely because the more dominant the rules become, the greater is familiarity with them and hence, the greater the certainty with which they are applied. In other words, transaction rules are standard ways - routines - evolving more often by practice and experimentation than by management design. Furthermore, once a rule is largely applied in a particular organisation, the introduction of new rules become costly. For employees, the introduction of a new set of work rules involves a greater uncertainty, a number of risks and information asymmetry. While the employer may see the whole picture, workers can usually see only their individual jobs. Without a complete view of change process, workers usually distrust the functioning and the outcome of new rules and the reasons for change. Thus the institutional structure may become rigid and obsolete as consumer demand evolves and new production and organisational technologies emerge. Under certain conditions, employer organisations and unions may enable flexibility and application and offer an institutional and relational framework for renegotiation when necessary (Marsden, D. 1999: 62). In such conditions, unions by negotiating with employer organisations may reduce the uncertainty coming from the change and offer workers a 'production shield' against information asymmetry and managers' power. Labour institutions may solve the problem of information asymmetry, diminish the individual bargaining weakness by reducing the employee's dependence on the threat to quit and provide a form of risk spreading to even out imbalances of power over time and between individual workers (Marsden, D. 1999:82). Strong inter-firm institutions may check the good faith of the other party, validate their information and restrain their own opportunistic members' action in order to achieve collective goals. In such sense, inter-firm institutions may solve problem of communication and can maintain a workplace trust and a long-term bargaining relationship. Moreover, they may enforce internal informal rules, by making them more predictable. In particular, inter-firm institutions enhance the effectiveness of informal transaction rules by increasing familiarity with them and confidence in their enforcement.

A final crucial area concerns, innovation, training for transferable skills and employability. When some employers significantly invest in training for transferable skills, other employers may be tempted to act as free-riders and profit from the training by others by poaching their skilled labour. In particular, Employer organisation may avoid such opportunistic behaviour by providing a channel for peer group pressures to ensure that all firms engage in a reasonable level of training. According to Marsden (Marsden, D. 1999), labour institutions supporting occupational structures need to be decentralized because much training is provided locally and in the workplace, as is the monitoring of its quality and of adherence to the training approach.

Generally, employer organisations facilitate the exchange of resources the accumulation of knowledge because network closure promote trust, create common values and enforce the social norms of cooperation (see Coleman, J.S. 1988). In other words, Employer organisations extend the boundaries of firm providing a larger safety area of work process and knowledge exchange. The exchange and interactions in articulable knowledge take place more quickly within technologi-

cal clubs and organisations because they provide a sort of external institutional structure to internal one of the firm.

Furthermore, even unions - considered as a natural outcome of homogeneous groups of workers tied tightly together - may foster trust, enforce reciprocity norms among its members, promote innovation and improve the efficiency of the firm. Common union terms such as 'mutual aid', 'solidarity', 'unity' and 'brotherhood' shows the centrality of trust relations among union members.

Furthermore, unions may promote employability by monitoring training quality and the maintenance of the training approach. Employability may be defined as the ability to maintain the job or to get a new job, assignment or contract. Employability concerns knowledge workers and members' abilities to meet future project challenges.

Trade unions and professional organisations should focus their efforts and resources on establishing services to maintain, acquire and constantly develop knowledge. In other terms, services such as career planning, education, life-long learning, continuing professional development etc, are crucial in the new model of European Trade Unions. However, this reorientation and shift in services has not been completed and Unions are not yet able to measure, and monitor the knowledge-sharing process. The evaluation and the accountability of knowledge-sharing, may be thus the first step in addressing union's strategy. Work process knowledge and sharing need to become a union's crucial mission statements or, in other terms, an union's knowledge strategy that can promote innovation and enhance employability. In the increased competition caused by the globalization process it is important to create competence networks where unions' members can define their competencies, their need for new abilities, develop career plans, get in contact with their peers, form communities of practice and knowledge. Although unions are not universities they should cooperate with them and provide career courses, teaching or informal education. They should establish networks among their members at local workplaces, across companies, between industry and academia, in order to create networks for members who aspire to learn, to develop knowledge and to diffuse innovation.

A significant part of the many and varied activities of unions should concern innovative issues. Unions should create and host learning environments for technological knowledge workers where members can turn to in order to have guidance, counselling and support in their effort to maintain employability. Indeed, activities such as technical lectures, company visits, courses and large conferences and symposia, at both the national and international levels may offer unions' members the chance to keep abreast of technological advances as well as relevant trend in society.

5. Organizing innovation in a flexible and cooperative industrial relations system.

On the basis of previous arguments, organisational learning should represent a major if not the major theme in the systemic analysis of the firm in economic theory. Precisely, in a dynamic and uncertain environment in which interaction process between employer and employees takes place, work process knowledge is needed by all members of flexible organisations to enable them to deal with new situations and work

across boundaries. In this theory, the firm is an institutional and relational structure primarily that provides different governance mechanisms for the creation and diffusion of knowledge (Antonelli, A. 2003). Better than markets, firms may provide an institutional environment that provide trust relations between their different members. In other terms, firms may be a better alternative to develop organisational learning defined as a product of the resources flowing through a person's web of contracts.

The firm is much more than just a nexus of contracts and it is characterized by informal institutions that reduce uncertainty and provide a greater level of trust in the organisation. In such a context, knowledge is valorized and complementarities among members are managed through a coordinated network of human resources. Furthermore the internal set-up into which the virtuous interaction process between managers and workers takes place is open and related with the external framework of the organisation. Firms rely not only upon internal work process knowledge but also on the generation of external new knowledge importing inside the organisation through alliances with other firms. In other words, the generation and introduction of technological innovations may be framed as the result of homogeneous alliances between the labour organisation's members or it may be viewed as the result of cooperation between heterogeneous groups of agents. In the latter perspective, innovation depends on the partnership between employer organisations and unions and at the individual level between firms and workers. This was the perspective and linkage explored in the 1997 Green Paper, "Partnership for a New Organisation of Work" based on high skill, high trust and high quality (European Communities 1997:1). The Green Paper claims that such an improved form of work organisation would be able to make a major contribution to improving the competitiveness of European companies, improving the quality of life at work, improving workers' employability and improving significant macro-economic results at national and EU level. In particular, the 1997 Green Paper focuses on the union's ability to take initiatives, to improve the quality of goods and services, to make innovations and to develop the production process and customer relations. From an employer point of view, social partnerships can be a powerful mechanism in designing and delivering change processes at the workplace and increase competitiveness and profits. Employers that allow unions and workers to participate in organisational change may gain long-term competitive advantage over who impose change without co-participation. Furthermore, in the ongoing relationships between employers and workers when long-term advantages of restraint seem to be outweighed by short-term costs, the breakdown of cooperation may occur. If employers have myopic goals and are affected by faster and greater return on capital, then social partnership may be limited. In the ongoing relationships between employers and workers when long-term advantages of restraint seem to be outweighed by short-term costs, the breakdown of cooperation may occur. A concertation system concerns a compromise that restrains myopic goals, in favour of more ambitious objectives in the longer term.

On the other side, social partnerships may lead to 'corporatism' and compromise union's independence. Thus partnerships is not an easy option for key union actors. And if unions are conservative and follow their traditional path of wage maximising bargaining supported by the threat of industrial action, then social

partnership cannot arise. Nevertheless, the existence of an external collective actor and of a flexible inter-firm institutional framework may be of key importance in renegotiating the agreements and in locking the parties into a long-term concertative relationship. Labour organisations may undertake efficaciously such functions if they are able to aggregate membership interests through repeated interaction in a wide variety of organisational settings. Industrial relations scholars such as Streck (1987), argue that unions should choose a 'production strategy' oriented to innovation and not the alternative of 'optimistic conservatism'. In order to regain value and legitimacy, unions may develop partnership approach in a dynamic strategy that combine bargaining and co-operation. Adoption of a more proactive strategy is one way to put unions back at the heart of the profound changes caused by the globalization process and taking place in society and at the workplace. Social pacts could develop a new model of work organisation, promote an optimum use of the full range of intellectual resources and innovate production systems at workplace level (Huzzard, T. *et al.* 2004).

The empirical evidence on the US provided in the 1980s by Freeman and Medoff about the relationship between unionised companies and economic performance show how 'unionisation is neither positive nor negative to the productivity in the companies' (Freeman, R.B. and Medoff, J.L. 1984). What matters is, instead, the nature of the relationship between the union and management at workplace. Furthermore, in their European study of social partnership and economic performance, Casey and Gold (2000:80) emphasise how the effects of partnership depends on the form it takes and its context. More precisely, in an Italian study conducted in the textile industry, Locke (1996) observed that cooperative companies were more efficient and more able to adapt to new market conditions, compared to those adversarial companies in which only traditional wage bargaining and conflicts take place. Empirical evidence of unions as a 'supportive force' for improved performance and productivity has been also provided by the study of partnership in the UK conducted by Guest *et al.* (1998), Knell (1999) and more recently by Guest and Peccei (2001). The empirical evidence shows, thus, an high level of mutual trust is very important in a co-operative and progressive form of industrial relations system. Furthermore, according to Marsden (1999) certain models of employee representation are more likely to promote cooperation than others with an adversarial style of representation and so more likely to be found with the function centred rules than with task-centred rules.

In summary, this empirical evidence brings into the centre of the discussion the crucial role of trust and of the intrinsic complementarity and interdependence within and between labour organisations in the generation and diffusion of innovation. If unions are to exist as legitimate actors in working life they also have to 'add value' to employers and that co-operation is required where joint interests of survival and prosperity can be discerned in an increasingly competitive and globalised environment.

6. Research and policy implications

Uncertainty and the diffusion of organisational knowledge in the workplace is at the core of the theory of the firm analysed in this study. Without uncertainty and with costless knowledge in the market there is no reward to establish hierarchy or organisational network. Without knowledge-sharing and exploiting knowledge from the external environment, it is difficult for the firm to be innovative, flexible and competitive. The (internal and external) institutional structure of the firms, reduces uncertainty, constrains opportunism, promote cooperation and organisational learning. Transaction rules undermine the way in which work processes and their phases, are organized and represent a source for the competencies (capabilities) required to carry out complex and unusual tasks. Although the normative structure of organisational learning may emerge as a result of decentralized decisions by firms and workers, it may be affected by inter-firm institutions such as employer and organisation and unions. Labour organisations can enhance the effectiveness and diffusion of transaction rules, facilitate the renegotiation of employment terms, support trust and promote knowledge-sharing in the firm. Unions may solve problem of opportunism and asymmetry of power and information by providing to employees protection and by offering to the manager additional and complementary knowledge owned by their members (Jarley, P. 2003). The interplay between transaction rules and inter-firm institutions and the strength of their effects depend on the different types of industrial relation systems. Through flexible and cooperative approach, unions will regulate and restrain their claims in order to achieve macro-goals such as monetary stability and maintain acceptable standard of social welfare at the same time, and micro-goals such as innovation and competitive performances of the firm. Nevertheless, if such an approach is not flexible, it can generate inter or intra organisational tensions which threaten unions survival, particular of its potential costs in terms of loss of autonomy on the part of representative organisations (which become bound by the terms of the agreements). The success of the concertation requires a culture of participation and cooperation and to re-design the internal structure by re-negotiating programmes and internal union rules if necessary. Unions' strength comes in part from their breadth of action (Hyman R. 1994; Wever, K. 1997). The adoption of a more proactive strategy is one way of avoiding marginalisation and a decline of union membership (Streeck W. 1987).

On the other side, single managers and employer organisations should recognise that sort of 'value added unionism', in other terms, they should be aware that work process knowledge is the foundation for innovation and that it may be promoted by dense networks of strong ties - provided by unions - among workers. So they should reduce their employer antagonism and resistance to unionization and gaining full partnership status in the workplace. Rather than constraint to change, unions may come to be framed as an important partners in the drive to maintain workplace competitiveness, promote employability, and diffuse innovation. Thus, one of the distinctive competence of the new model of unions should be the increased understanding and application of work process knowledge in order to be sensitive to changes and new trend in labour market.

This paper, thus, could be viewed not only as a theoretical key to understand the role of interfirm institutions in the nature of the firm, but also as a mean to analyse the dy-

dynamic of labour movement by stimulating some new conceptual and speculative thinking about an alternative discourse on the organisation of work and the role of industrial relation systems at micro level on employability, competitiveness, and innovation with consequent effects at macro level.

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