

Reconceptualizing the Dynamic Evolution of the Firm: On Learning and Restructuring in Adaptation

Jong-Ho Lee*

기업의 동태적 진화 및 적응 이론에 대한 비판적 고찰:
적응에 있어 조직학습과 재구조화 관점을 중심으로

이 중 호*

Abstract : This paper debates on two different theoretical positions in explaining corporate adaptation. Until the 1980s, a restructuring perspective had dominated in explaining corporate success and adaptation. However, this perspective pays little attention to how firms adapt to environmental change and why some firms adapt successfully, while some others fail to adapt. Thus a restructuring perspective does not give insights into a context-specific explanation of corporate learning and adaptation. More recently, especially since the 1990s, academic focus on corporate adaptation and evolution has shifted towards exploring the nature of learning that leads to the dynamic competitiveness. A learning perspective emphasizes the influence of knowledge, learning and competence on corporate evolution. However, it reveals that this view is also less appropriate for explaining corporate adaptation in radical shifts in environment. In this context, the evolutionary theories of the firm need to seek to maintain a balance between two theoretical positions in order to understand more effectively the dynamic evolution and adaptation of the firm. This paper shows that the dynamics of corporate adaptation and evolution are an outcome of the mixture of perpetual processes of restructuring and learning, both continuous and discontinuous.

Key Words : adaptation, evolution, competence, a learning perspective, a restructuring perspective, an evolutionary theory of the firm

요약 : 본 논문은 환경 변화에 대한 기업의 동태적 적응 메커니즘을 설명하는 대조적인 두 이론을 고찰하고, 두 이론 간에 보완적 연계의 필요성을 밝히는 것이 그 목적이다. 1980년대 까지 재구조화론은 기업의 성공과 적응을 설명하는 지배적인 접근이었다. 그러나 이 접근은 환경 변화에 대해 어떻게 기업이 적응하는지, 기업들 간의 적응의 성과가 왜 상이하게 나타나는지에 대해 설명하지 않는다. 즉 재구조화론은 기업의 학습과 적응에 대한 맥락 특수적인 해석 시각을 제공하지 못한다. 한편 1990년대 이후에 기업의 학습과 진화에 대한 학문적 관심은 기업의 동태적 경쟁력을 이끄는 기업 학습의 본질을 고찰하는 것에 초점이 두어져 왔다. 조직학습론은 조직 진화에 있어 지식, 학습, 그리고 역량 중 중요성을 강조한다. 하지만 이 접근 또한 급진적인 환경 변화에 대한 기업의 적응 메커니즘에 대해서는 효과적으로 설명하지 못하고 있다. 본 연구는 이러한 맥락에서 기업의 동태적 적응과 진화는 재구조화 과정과 점진적 및 급진적 학습 과정의 결합을 통해 나타난다는 사실을 설명하고, 이를 토대로 기업의 진화와 적응을 효과적으로 설명하기 위해서는 두 이론을 보완적으로 연계한 통합적 이론 체계가 구축될 필요가 있음을 제안한다.

주요어 : 적응, 진화, 역량, 조직학습론, 기업 재구조화론, 진화론적 기업이론

1. Introduction

In an era of economic globalization, capitalist firms have been under great pressure to cope with increasing international competition in markets and technology. In this context, knowledge, learning and innovation have become fashionable words in the geographical and economic literature.

Many argue that the capability to learn competitive knowledge is critical for the continuous survival and evolution of the firm. A great deal of attention has been paid to exploring the sources and generating mechanisms of learning and innovation. Among various theoretical perspectives aiming to explain the evolution of the firm, a knowledge or competence-based approach has

* Full-time Lecturer, School of Social Studies Education, Gyeongsang National University(경상대학교 사범대학 사회교육학부 지리전공 전임강사)(jhl@gnu.ac.kr)

been recognised as a useful framework for understanding the dynamics of learning (e.g. Amin and Cohendet, 2004; Nelson and Winter, 1982; Foss, 1998; Hodgson, 1998).

From this approach conceiving the firm as a processor of knowledge and a learning entity, the knowledge residing in the firm is composed of organizational competences. It focuses on the problem of how competences are generated, maintained, replicated, and modified. This has a direct connection with learning. Learning is associated with the creation and development of competitive knowledge within the firm and its wider networks.

However, such learning cannot take place in a social vacuum. Learning involves not only a cognitive process, which manifests in the acquiring, exchanging and transferring of knowledge in an organizational context (Odgaard and Hudson, 1998), but also a non-cognitive process, which is characterized by unconscious learning (Amin and Cohendet, 2004; Wenger, 1998). However, whatever its nature, learning is achieved through social interactions between agents and can be of crucial importance to the continual adaptation and evolution of the firm.

Adaptation involves more than dimension of learning, but the competence-based view tends to deal with aspects of adaptation only when discussing the pressures on organizational routines that are constructed as a result of continuous learning. The concept of adaptation needs to be conceptualized in a broader sense. In this paper, this concept is defined as corporate responses to environmental change, which take various modes of restructuring and learning. In this sense, this paper attempts to present a dual perspective on adaptation, one that stresses both learning and wider restructuring. It emphasizes that both are not completely independent and are complementary in corporate adaptation.

In the first section, I attempt to conceptualize

firm learning. I begin by defining such basic constituents as knowledge and competence, which are involved in the process and mechanism of learning. Then I explore the dynamics of the learning process, focusing on the context of organizational change and adaptation. The theoretical emphases are on the definition of 'learning' as incremental improvements drawing on the development of tacit knowledge as well as radical innovations based upon a series of strategic actions taken to access new knowledge. However, from the following sections, I question that a competence-based learning approach does not provide a sufficient understanding of how learning takes place in the firm and of what kinds of corporate strategy are sought to sustain adaptation and in what ways. This is an attempt to show that adaptation and learning are not pre-defined and self-evident.

In the following section, I suggest that corporate restructuring is a means of sustaining corporate adaptation, and that its process and outcome rely on firm-specific contexts such as routines, learning and competences. Furthermore, corporate restructuring occurs through the adoption of multiple strategies, some of which entails learning associated with the continuous development and discontinuous creation of knowledge and competence. In the final section, I attempt to link a learning perspective and a restructuring perspective. Here, I argue that corporate adaptation can be better understood by combining both theoretical positions than only taking any one side between the two.

2. Defining the Concept of Adaptation

One of the central themes in evolutionary and competence-based theories of the firm relates to how firms adapt to environmental change (Metcalf and Calderini, 1997). In fact, organizational theories

also have a variety of theoretical branches, called Open Systems (OS) perspectives, which are closely associated with theorizing the relationship between organization and the environment. For them, it is conceived that firms, as a product of their environments, must respond to changing environments over time (Nohria and Gulati, 1994). In this context, adaptation is considered crucial for the survival and evolution of the firm.

However, definitions of the term adaptation tend to be given with two contrasting perspectives. One view is interested in 'adaptation' in order to emphasize the path-dependent nature of organizational response to environmental change, while another view recognizes 'adaptation' as a product of firm's strategic and non-strategic responses to environmental change.

Some writers, who are interested in the influence of learning on organizational evolution and change, refer to the way in which firms show path-dependent responses to environmental change (e.g. Foss, 1998; Levitt and March, 1996). In evolutionary and competence-based theories of the firm, the firm is seen as a changing, but relatively durable entity, implying the possibility of the firm to change tends to become increasingly low over time (Hodgson, 1998). This means that the state of the firm at a given point in time is path-dependent, signifying that present and past behaviors display a similar pattern (Foss, 1998; Nelson and Winter, 1982). The evolutionary path of the firm is embodied in organizational routines, which refer to regular and predictable behavioral patterns of firms.

The concept of routine, therefore, can be important for understanding path-dependent patterns of firms. For Levitt and March (1996: 517), this concept does not just include the forms, rules, procedures, conventions, strategies and technologies around which organizations are constructed and through which they operate. It also involves the structure of beliefs, frameworks,

paradigms, codes, culture, and knowledge that support, elaborate and contracts the formal routines. Specifically, routine is an executable capability for repeated performance in a context that an organization in response to selective pressures has been familiar with. Organizational routines are transmitted and reproduced incrementally through both the intentional and unintentional behaviors of an organization, although this does not mean that business behaviors always follow regular and predictable patterns. This is to emphasize that there are stochastic elements both in the determination and in the outcome of decisions (Nelson and Winter, 1982).

Organizational routines are created as the result of learning processes involving the construction of competences (Levinthal, 1996). In a relatively stable environment, such an attribute of routines therefore provides a source of organizational competences. It is, however, paradoxical that routine is likely to create an inertia that constrains organizational change. Inertia is often the product of successful adaptation to the past environment, as a firm develops ways of operating that appear well suited to its internal and external environment (Langlois and Robertson, 1995; Levinthal, 1991). There is the possibility that the path-dependent nature of organizational behaviour based on routines restricts organizational change, even in the face of stimuli external to the activity and decision rule in question (Helfat, 1998). The reason is that the strategies deployed in order to adapt to an established environment are not necessarily suited to a transformed environment. This implies that incremental or evolutionary adaptation can be the cause of an organizational lock-in that restricts adaptability to a changing environment. In this view, the term adaptation refers to the response to changes in environment.

However, this definition of adaptation is unnecessarily narrow. A firm's response to

environmental change can be diverse. Firms attempt to adapt to environmental turbulence by drawing on various adaptation strategies, such as changes in organization, leadership, product and process. For Laitinen (2000), the adaptation strategy is defined as a response strategy to the environment. In a similar vein, Sharfman and Dean (1997) define 'adaptation' as the series of a firm's strategic choices about how the organization should respond to perceived threats or opportunities. Dosi and Malerba (1996) argue that adaptation occurs when the firm changes its strategy, structure or some other core attribute to fit some new environmental contingency.

In a nutshell, adaptation represents organizational responses to environmental change. When we understand the concept of adaptation like this, not all the strategies that firms deploy may entail learning in a direct way (Levinthal, 1996). Some of the adaptation strategies may centre on gaining new knowledge and competences and sustaining organizational and technological innovations, which will necessarily be accompanied by a learning process. Those may include inter-firm alliances and R&D activities. Meanwhile, other forms of firm strategy can concentrate on cost reduction through the dimensions of restructuring such as downsizing, employment adjustment and organizational change. It can be assumed that these two forms of adaptation strategies involve distinctive processes that have little to do with one another. However, I argue that both forms of adaptation strategies need to be understood as complementary or, in some sense, indivisible processes, as effective adaptation can be realized through complex organizational processes that bring together restructuring and learning. The next section takes into account a learning perspective on adaptation.

3. Learning to Adapt

1) Learning and Competence

The recent development of the competence-based approach to the firm has put the concept of learning at the forefront of studies on organizational change. Learning is regarded as the development of skills and knowledge via access to new knowledge or the improvement of an established knowledge structure. This definition recognizes that learning relates to the creation and development of knowledge and competence through mobilizing existing internal knowledge, as well as through the acquisition of knowledge outside of the firm.

Since organizational theorists such as Selznick (1957) and Penrose (1959) introduced the concept of competence to identify the distinction between firms, it has become a major concept in the evolutionary and competence-based theories of the firm. Competence means what firms 'can do well' and 'core competence' what they can do 'better than the others' (Prahalad and Hamel, 1990). The concept of 'distinctive competence' expresses the distinction between internal resources such as knowledge and competences and the different potential for continuous evolution that exist between individual firms. Competences are basically said to include the sets of routines, differentiated skills and knowledge, the ability to combine these sets of knowledge, and secondary assets which express the efficiency of problem-solving procedures (Cohendet *et al.*, 1999).

More specifically, the constituent elements of organizational competences include the ability to access, incorporate and use externally derived information and knowledge, the capability to learn and generate knowledge and information internally, the mastery of technologies and production, the applicability and effectiveness of problem-solving procedures, and the understanding of demand and user's requirements (Dosi and

Malerba, 1996). On the other hand, competences could also imply firm-specific routines that coordinate and govern corporate internal relationships (Coriat and Dosi, 1998).

Looking at these characteristics, it can be argued that competences do not lie in particular products or markets, but in organizational processes and capabilities that enable firms to co-ordinate activities and make use of their assets (Liedtka, 1999). Moreover, organizational competences are said to be collective and tacit. They cannot be reduced to the sum of competences possessed by members of the organization, because they tend to be embedded in the nature of collective social relationships within the organization. In addition, competence, particularly core competence, is seen as non-transferable and inimitable. This highlights the differences in dynamic competences among firms (Foss, 1993; Hodgson, 1998). In this view, the firm is seen as an entity seeking to obtain and sustain a competitive advantage through the cumulative development of a distinctive set of organizational competences (Liedtka, 1999). In this respect, organizational competences constitute the basis of competitive advantage and learning is central to creating and promoting competences.

In contrast to the contractual approach that conceives the firm as simply 'a processor of information' for optimizing allocation of resources, the competence-based approach recognizes the firm as not only 'a repository of knowledge, experience, and skill' but also as 'a processor of

knowledge' for creating resources which consist of a firm's competitive competences (Amin and Cohendet, 2004). In this sense, knowledge becomes a crucial element of organizational competence.

2) Knowledge and Learning

Since Michael Polanyi (1967) who emphasized the tacit dimension in the epistemology of knowledge, scholars have discussed the role of diverse forms of knowledge in organizational competence. Two forms of knowledge especially are contrasted: the tacit and the codified. Tacit or non-codified knowledge involves specific skills and know-how, which are not transferable beyond the context in which they are produced and embedded. Tacit knowledge can be acquired through experience, direct observation, imitation and interaction (Hodgson, 1999). These can be devised through on-the-job-training, apprenticeship and daily work practice, personal rotation, informal meeting, block conference and so on.

Some types of learning are related to the acquisition of tacit knowledge. For example, 'learning-by-doing' takes place through daily work process. Through experience and trial and error, people can gain tacit knowledge in the form of skill and know-how. 'Learning-by-interacting' is to show the social dimension of learning. The idea is that learning processes based on reciprocal interactions between agents, particularly firms, promote the acquisition and

Table 1. Types of knowledge and the sources of learning

	Tacit	Codified
Internal	<ul style="list-style-type: none"> · Learning by doing · Learning in doing/working · On-the-job training 	<ul style="list-style-type: none"> · In-house R&D · Intra-firm training programmes
External	<ul style="list-style-type: none"> · Largely localized tacit knowledge · Face-to-face contact and informal exchanges by acquaintances 	<ul style="list-style-type: none"> · Inter-firm alliances and joint ventures · Technological licensing · Conferences, journals, texts and the like

exchange of knowledge. However, it does not mean that these are sufficient for the dissemination and exchange of tacit knowledge such as know-how and skills. Although tacit knowledge can be assimilated through these learning practices, it seems to be at best partial. This makes the codification and transfer of tacit knowledge difficult. The reason is that tacit knowledge tends to be embedded in specific personal and organizational skills and the complexity of human relationships.

Non-explicit or tacit knowledge can be embodied at the individual level as well as the collective level. Tacit knowledge that individuals gain as a product of learning-by-doing is difficult to share and formalize at the collective level. However, once knowledge is acquired at the organizational level, it tends to be memorized in the form of routines, conceived as the behavioral pattern of an organization (Hodgson, 1998; Leroy and Ramanantsoa, 1997). The routinization of tacit knowledge tends to form organizational competence. This means that organizational competence is composed of competitive knowledge. Since tacit knowledge and competences, which are embedded in a specific organizational context, are not immediately transparent, they are difficult to accurately duplicate in the different organizational and institutional contexts. However, there is the danger that competences may be turned into a lock-in over time, which could impede the chance to learn external knowledge and consequently curtail adaptability to environmental change.

As opposed to tacit knowledge, codified or formal knowledge involves scientific and other forms of knowledge, scripted or formalized in the form of patents, books, papers, tapes, and so on. It is assumed that codified knowledge can easily be transferred. However, it does not imply necessarily that this process makes codified knowledge no longer important. As recently

argued by Zack (1999) and others, formal knowledge, such as procedure manuals, product literature, patents and computer software, does not only play a large role in organizations, but is also a crucial factor for the production of knowledge. Formal knowledge has a ubiquitous nature once access to its sources is mastered, but the entry barriers to new knowledge can be considerable (Amin and Wilkinson, 1999). These include the lack of absorptive capacity and the difficulties of accessing valued codified knowledge such as patents. For the former, Cowan *et al.*(1999) point out that the tacit nature of specific codified knowledge tends to be a barrier to learning and the dissemination of knowledge. If a specific group or organization retains competitive tacit knowledge, members of that group or organization may make a codebook to share between them. As such a codebook is designed and made for only a certain group or organization, outsiders may have difficulty in accessing the knowledge it contains. This knowledge, although taking an explicitly codified form, may therefore be tacit for others and remain the property of the group. For others to be able to access such a form of knowledge, they have to possess the capability to acquire, decode and absorb that knowledge. In other words they need 'absorptive capacity'.

On the other hand, some kinds of formal knowledge, such as patents, may be critical for firms to sustain their competitive advantages in the market competition. It emphasizes the importance of the appropriation of knowledge in capitalist competition. Thus, firms possessing competitive formal knowledge make great efforts to monopolise and appropriate such knowledge. In this sense, a prime issue for latecomer firms is likely to include the problem of how to access formal knowledge as well as of how to develop tacit knowledge. Once firms succeed in accessing formal knowledge, the focus is on how to

incorporate this new knowledge into the organization and how to sustain an optimal combination between the new formal knowledge and the tacit knowledge embedded in the organization.

In sum, these characteristics of knowledge show that both forms of knowledge do not exist completely independently. The acquisition of formal knowledge needs tacit knowledge in the form of skills and know-how, while tacit knowledge needs to be codified within the firm. There is no doubt that tacit knowledge can be a basis for the development of core competence. However, once tacit knowledge becomes core competence, it conversely becomes a basis for core rigidity, which may result in inadaptability to change. Thus, continuous corporate adaptation may depend on how core competences can change to fit a new environment. To do this, firms need to combine and harmonize embedded tacit knowledge and external codified knowledge.

3) 'Learning to Adapt' in Question

Organizational learning is not a simple process in its own right. Learning involves cognitive processes, manifest in the process of acquiring, exchanging, applying, transferring and modifying knowledge in an organizational context (Hayes and Allison, 1998; Odgaard and Hudson, 1998). However, processes of learning may differ, depending on the nature of organizational responses to changes in the internal and external environments of the firm. They also differ in outcomes.

Argyris and Schon (1978) distinguish 'single-loop learning' from 'double-loop learning'. Single-loop learning involves incremental change within an existing framework. This type of learning implies the reinforcement and refinement of existing routines as well as the improvement of the knowledge base or firm-specific competences

without changing underlying norms and assumptions (Dodgson, 1993). Learning processes are characterized by a single feed back loop that involves a process of stimulus-response to the results. The goal of learning is how to best keep organizational performance within the ranges set by organizational norms and how to best achieve existing goals and objectives. The norms and values of the organization remain unchanged.

For this reason, learning is said to be necessarily path-dependent and self-reinforcing. Continuous learning, which is not aimed at changing routines, is likely to induce the development of firm-specific competences. Simultaneously, these competences become a set of routines that constitute the problem-solving process (Dosi and Marengo, 1994; Foss, 1998; Nelson and Winter, 1982). Routines, once established in an organization, tend to persist with existing learning processes. The self-reinforcing nature of learning makes it attractive for the firm to sustain its current focus (Levinthal, 1996), which can lead to the 'competence trap' (Levitt and March, 1996). The success of past strategies tends to result in complacency and sometimes the failure to adapt in the face of environmental change (Liedtka, 1999).

There is the possibility that an organization will persist in its existing ways of doing things, even in situations where existing routines are no longer adaptable to changes in the environment. Tushman and O'Reilly (1996) note that the corporate evolution is, to a greater or lesser extent, influenced by organizational inertia, including both structural and cultural dimensions. Structural inertia means a resistance to change which is rooted in the size, complexity and inter-dependence of the organization's structure, systems, procedures and processes, whereas cultural inertia comes from age and success. Some claim that the older the age of the firm the more difficult the firm find it to cope

effectively with a rapidly changing environment due to the path-dependent nature of learning (Levinthal, 1996; Teece *et al.*, 1997). Therefore, single-loop learning or exploitation is likely to be effective in either a stable environment or in the short run, but is problematic in the long run. This is the reason why firms need to seek double-loop learning to sustain continuous adaptation and long-term competitiveness.

Double-loop learning entails transformative change accompanied by changes in the firm-specific knowledge base, competences and routines. While single-loop learning is reactive, double-loop learning is strategic. Thus, both dimensions of learning are qualitatively different. Double-loop learning is required when existing competences or routines become obsolete due to radical changes in the internal or external environments of the organization. This is likely to take place when the organization seeks radical innovations in products, processes and organization (Hudson, 2001). The sources of knowledge for radical innovations comes mainly from learning channels such as R&D activities and external institutions, including competing firms, universities and R&D institutions (Gertler, 2000; 2001).

The process of double-loop learning involves an 'unlearning' process, which is defined as a process through which the organization discards obsolete and misleading knowledge and routines (Nystrom and Starbuck, 1984). The more rapid the environmental changes, the more crucial the ability of the firm to unlearn obsolete routines becomes for its survival. In this sense, double-loop learning is more complicated and difficult to implement than single-loop learning. As Argyris and Schon (1978) point out, most organizations do quite well with single-loop learning, but have great difficulties with double-loop learning. Hedberg (1981) goes so far as to argue that forgetting established knowledge and routines could be even harder than acquiring

new knowledge. There are some means of unlearning, however. The first is to discharge employees, especially corporate leaders or managers who are unable to move away from outdated ways of doing things (Huber, 1996) and instead to recruit people who have new insights and perspectives. Secondly, as unlearning is likely to take place when a firm faces a crisis in internal or external environments, unlearning can be induced by intentionally infusing employees with a sense of crisis (see, for example, Kim, 1998).

Regarding the arguments stated above, one might say that existing knowledge bases, competences and routines could hamper new learning as well as degrade an adaptability to change. However, this is only partially true, as not all established organizational knowledge and routines are obsolete for sustaining discontinuous learning and radical adaptation. The knowledge base that is accumulated within the organization as a result of continuous learning is a prerequisite for new learning. The reason is that the effective learning of new knowledge requires absorptive capacity which depends on a prior knowledge base (Cohen and Levinthal, 1990). A prior knowledge base comprises tacit knowledge, such as know-how and skills, including the problem-solving capabilities. Nooteboom (1999) argues that a prior knowledge base is helpful when new learning is sought in a novel way but related to an existing system. This means that the acquisition of new knowledge and learning cannot be separated from an organization's knowledge base and routines. In sum, a crucial challenge for firms to adapt to radical changes might be not to specialize in any one type of learning, but to sustain a balanced combination of continuous learning and discontinuous learning.

To conclude, a competence-based learning perspective provides a clear implication for corporate adaptation. That is, adaptation is

dependent on how the firm is able to sustain continuous and discontinuous learning by combining various forms of knowledge through effectively monitoring the changing nature of business environment. Despite its well-defined understanding of corporate dynamics, the competence-based view is silent on the mechanisms and processes through which firms learn and adapt. In other words, a matter of how learning occurs in the firm tends to be taken as given in the competence-based view. In addition, this view is little to say about the detailed processes of corporate strategies taken to adapt to radical change.

4. Restructuring to Adapt

Since the 1950s, the radical increase in international competition in markets and technology has led to the decline of many large Western firms' monopolistic competitive positions. Many of them have responded by restructuring. During the 1980s, in particular, nearly half of all large US firms undertook restructuring. In that period, the focus of corporate restructuring was on the reorganization of the business portfolio through downsizing or Mergers & Acquisitions (Rock and Rock, 1990).

It is true that capitalist firms have restructured in response to the changing market and technology. However, the recent tendency in corporate restructuring differs from that of the past. Corporate restructuring has become more complex and multifaceted. This is because not only has inter-firm competition become increasingly intensified, but also the pace of change in market and technology has significantly accelerated.

In this vein, it is not easy to define 'corporate restructuring'. Usui and Colignon (1996) argue that whatever a firm does under pressure can be referred to as corporate restructuring. They summarise the dimensions of corporate restructuring

as follows: the elimination of product lines, the combination of internal units, new stock offerings, early retirements, the sale of nonessential units, plant closure, the externalization of employment by taking regular employees-out and relying more on contract or temporary workers, the replacement of top executives and board members, the reallocation of employees, and a change of decision-making location (centralization or decentralization).

According to Roger Hayter (1997), a Canadian economic geographer, corporate restructuring involves corporate activities aimed at lowering costs, enhancing productivity and improving market position. It implies the search for flexibility in technology, production, organization, markets, location and labour. Each of these becomes the theme of corporate restructuring, and in many ways, they become interwoven in the process of restructuring.

In management terms, Bowman and Singh (1990) define corporate restructuring more precisely as a change in assets, financial portfolio or management. Asset restructuring consists of adjusting a business portfolio through downsizing, mergers, acquisitions and joint ventures. Financial restructuring involves changes in the capital structure of the firm. This means the infusion of high levels of debt to increase the leverage of the firm to reduce the likelihood of a takeover. Management restructuring involves significant changes in organizational structure to increase the efficiency of management.

It is assumed that the notion of restructuring involves a revolutionary change, a qualitative transformation from one state to another (Lovering, 1989). However, it does not necessarily involve such a complete transition (Hoggart and Paniagua, 2001), nor do all processes of corporate restructuring lead to revolutionary change. Rather, it is better to view corporate restructuring as an on-going process of qualitative

change. Corporate restructuring can also be accomplished through incremental processes of organizational change.

In addition, corporate restructuring is context-dependent, as its process depends on the nature of the industry in which firms are engaged, and their environment. Let me take an example. For firms operating in a mature industry and stable market, the key to adaptation seems to be factors like cost, efficiency, and incremental innovation. On the other hand, firms competing in an emerging industry and an unpredictable market need to make great efforts to develop new products and ways of doing things in order to adapt the market to a given environmental situation.

Therefore, corporate restructuring is, in many ways, the outcome of specific corporate strategies developed to adapt to a changing environment. However, it is difficult to see corporate restructuring as the result of an optimal reaction to or interpretation of a changing external environment (McGrath-Champ, 1999). As described above, corporate restructuring strategies are complex and multifaceted, reflecting the process of adaptation to environmental change. This implies that a restructuring approach is capable of providing useful insights into what is needed for corporate adaptation.

This is a critical aspect that the learning perspective tends to overlook by focusing largely on the development of organizational knowledge and competence. In addition, some of corporate restructuring strategies involve learning either directly or indirectly. The following explain three ways of firm restructuring in more detail and show how they facilitate adaptation.

1) Downsizing

Downsizing is referred to as a means to reduce the size and scope of firm's activities.

This has long been recognised as the most conventional way of restructuring taken by firms facing a substantial decline in operating performance. The aim of downsizing is to abandon business lines, which are seen as peripheral to core business or the long-term strategy of the firm. The recent tendencies in the restructuring of productive organization, such as the movement from vertical integration towards vertical disintegration and the significant increase of outsourcing, exemplify one outcome of strategic downsizing by big firms (Sayer and Walker, 1992). Downsizing in productive organization can also be done by the selective closure and rationalization of production facilities.

Another means of downsizing is employment adjustment such as lay-offs with the aim of reducing labour costs. However, firms find it difficult to sustain their competitiveness solely by lowering labour costs. Therefore, they try to increase productivity by intensifying work practices. The prevailing conceptions of 'knowledge workers' (Delbridge *et al.*, 1998; Kenney and Florida, 1993; Lowe *et al.*, 1997) and 'the learning firm' (Hudson, 1999; Asheim, 2000) are those that emphasize the importance of the exploitation and exploration of organizational knowledge for the increase of competence and productivity.

2) Change in Organizational Structure

Recently, the focus of corporate restructuring has been on creating organizational forms which are designed to be flexible enough to adapt to a rapidly changing environment, but also on more effectively mobilizing the organizational knowledge and competence distributed in the firm.

For large firms encountering environmental uncertainty and pressure, one of the critical challenges is how they can reconfigure their organization in order to fit this changed environment. Contemporary large firms have, to

a lesser or greater degree, a diversified business structure. They illustrate how multi-divisional forms of organization can effectively manage varied business lines, although the internal composition of the forms may substantially vary from firm to firm according to organization-specific conditions. Organizational structure is one of the critical factors that determine corporate adaptability to environmental change, as it is likely to determine decision-making channels and the flow of information and knowledge within the firm. This is evident in Sharfman and Dean Jr. (1997), who argue that the most crucial factor in all organizational adaptation is the decision-making process.

Firms need an organizational structure that is adequate for effectively coping with unpredictability and instability in business environment. This is because, under turbulent economic conditions, firms have to be flexible enough to be capable of responding quickly to new pressures and demands (Kelemen, 1999). As one evidence that shows this tendency, the largest leading firms have tended to decentralize strategic decision-making by dividing it into sub-organizational units. The structure of organization is to a degree associated with the capability to mobilise resources and competences within and without the firm (Amin and Cohendet, 2004). This is important with regard to competitiveness and learning. In the long term, continuous adaptation can be sustained through a balanced coordination of continuous and discontinuous learning, which requires the timely and effective mobilization of resources and competences. Firms that are capable of reorienting themselves to new adaptive landscapes have organizational forms which favour decentralization and local autonomy, representing an internal diversity that is conducive to generating multiple bases learning processes (Levinthal, 1996; Teece *et al.*, 1997). Such forms of organization enable firms to

combine exploitation with exploration. Thus they may increase the possibility of learning and innovation based on cognitive diversity as well as the likelihood of adaptation, thanks to openness to outside worlds and the flexibility to adapt to changes.

3) Product & Process Innovations

Sustaining innovation in products and processes is important if firms are to adapt to intensifying competition. Firms deliberately seek to differentiate themselves from rivals through a variety of product and process innovations (Saviotti, 1996). In a given market, process innovation plays a role in increasing the flexibility of production as well as in reducing production costs. According to the theory of product life cycle, process innovations tend to take place mainly in a mature stage of product as an important factor for sustaining adaptation (Hudson, 2001). Examples of industries at the mature stage of a product life cycle include consumer electronics, chemicals and steel, and firms in these industries compete for established product technologies. Therefore, the centrality of competition lies in the efficiency of production and the reduction in costs rather than in new product knowledge. In addition to this, process innovation tends to be more important for technology-follower firms attempting to sustain competitiveness (Kline, 1991). However, process innovation can also be critical for corporate competition in the high-tech industry.

Process innovation involves either the reorganization of labour processes or the introduction of new production methods. An improvement in the production process is often the outcome of learning-by-doing and trial and error taking place in the manufacturing process. These processes of learning by manufacturing workers produce tacit knowledge in the form of know-how and skills, and the organization's tacit

knowledge is likely to lead to incremental innovations. However, this does not seem to be enough for firms to sustain continuous adaptation. Sometimes, firms need radical innovations in production processes such as the introduction of new production technologies or machines. The codified knowledge embodied in these should be adapted to specific organizational contexts. The process of innovation needs the combination of codified knowledge imported from the outside and tacit knowledge embedded in the organization. Therefore, successful adaptation to the new ways of production may rely on the ability to settle new routines in the workplace by effectively bringing together both forms of knowledge.

In addition to process innovation, leading players strive for product innovation. This is to secure their competitive position by creating new markets beyond existing markets (Hudson, 2001). It is also a means to survive and adapt to intensified market competition and the change in consumer demand. Innovations in products are by and large incremental rather than radical, because most product innovations tend to take place within the scope of existing products. Rosenberg(1996) confirms this tendency by showing that more than 80% of industrial R&D expenditures are devoted to improving existing products. This means that the focus of R&D activities in industrial firms is on 'Development' rather than 'Research' (Forbes and Wield, 2000). Industrial leaders in market and technology do not only strive to intensify their competitive position through incremental innovations, but also make great efforts to remain in the industrial leadership and to adapt to new competitive environments by sustaining radical innovations.

5. Linking Learning With Restructuring

A competence-based learning perspective offers a useful framework for an understanding of not only why firms differ in adaptation and evolution but also of how the firm learn and adapt to both incremental and radical change. Learning is based on processes of knowledge not only both within and beyond the firm boundary but also existing in both tacit and explicit forms. Thus learning constitutes the basis of firm competences. Meanwhile, competences or routines based on such processes of learning appear to make it difficult for a firm to sustain strategic learning to adapt to radical change. However, this competence-based view, despite its rich implications for the dynamics of the firm, does not explain the sources of learning and the social processes of learning taking place both in and out of the firm. Considering processes of mobilizing various forms of knowledge and processes of learning, a sociological understanding of learning communities is of critical importance.

In addition, it is problematic that a competence-based learning perspective is little to say about the specific processes of firm strategies taken in response to radical change. A learning perspective tends to draw too much attention to incremental learning. In contrast, a restructuring perspective offers a useful framework for making sense of the processes and mechanisms of adaptation to radical change in the real world. Corporate restructuring involves various dimensions of organizational change and adaptation. Although these restructuring measures aim at the transformation of organizational structure and strategy, processes of restructuring also involve learning processes. In this sense, restructuring strategies help to understand various sorts of learning strategy.

Nevertheless, it is not that this is without flaws. This view also does not show firm-specific processes of adaptation. In other words, this view does not explain why in an identical

situation some firms take a certain strategy, while why others do not so; why firms take different strategies; and why such strategies result in different outcomes between firms. In addition, this view does not interest how social processes of learning and organizational competences contribute to the implementation and outcomes of firm strategy. In this sense, a learning perspective provides a context-specific explanation of corporate adaptation. Therefore, corporate adaptation could be better understood by combining both theoretical positions.

6. Conclusions

This paper has attempted to conceptualize corporate adaptation by drawing on both a learning perspective and a restructuring perspective. I have tried to show that corporate adaptation cannot be reduced to limited aspects of learning or organizational change. Instead, I have emphasized that adaptation involves multiple processes of organizational responses to environmental change. Whether a firm is capable of adapting to changes seems largely dependent on both the process and outcome of organizational change, both strategic and non-strategic actions, and both internal structure of governance and external environments.

I have argued that incremental learning, drawing on tacit knowledge, cannot adapt to environmental discontinuity. This is likely to make established routines obsolete, as routines that are seen as core competences imply path-dependent learning, when different modes of learning are required in order to fit a new environment. In this case, core competences turn into core rigidity and thereby result in a state of lock-in. A radical change in environment requires firms to learn to adapt.

As argued, learning to adapt presents a greater challenge to firms than does competence-

based incremental learning as it involves a management's ability to perceive and anticipate changes in the surrounding environmental conditions as well as requiring an unlearning process. It also means not only combining tacit knowledge and codified knowledge, but also mobilizing internal knowledge and external knowledge. It does not mean, however, that radical learning does not need the knowledge accumulated within the firm or to specialize in the acquisition of formal knowledge. Various forms of organizational knowledge serve as absorptive capacity, which is crucial to learning new knowledge. In addition, learning, especially radical learning requires that tacit knowledge and explicit knowledge are brought together. As a result, a crucial challenge for firms to adapt to radical changes is to not specialize in any one type of learning, but to sustain a balanced combination of incremental (single-loop) and radical (double-loop) learning.

I have also argued that in the real world, corporate adaptation is sustained through both learning and restructuring. Understanding the processes of corporate restructuring offers useful insights into what is required to sustain continuous adaptation. At first, some of the restructuring processes, such as downsizing, employment adjustment, and the replacement of top managers, are conducive to forgetting (unlearning) existing routines and sustaining discontinuous learning. Technological and organizational innovations on a continual basis are recognised as extremely crucial for firms to adapt to increases in inter-firm competition and the complexity of technologies.

References

- Amin, A. and Cohendet, P., 1999, Learning and adaptation in decentralised business networks, *Environment and Planning D: Society and*

- Space*, 17, 87-104.
- Amin, A. and Cohendet, P., 2004, *Architectures of Knowledge: Firms, Capabilities and Communities*, Oxford University Press, Oxford.
- Amin, A. and Wilkinson, F., 1999, Learning, proximity and industrial performance: an introduction, *Cambridge Journal of Economics*, 23(2), 121-125.
- Argyris, C., & Schon, D., 1978, *Organizational Learning: A Theory of Action Perspective*, Reading, Addison Wesley, Reading, MA.
- Asheim, B., 2000, The learning firm in the learning region: workers participation as social capital, Paper presented at the Workshop on the Firm in Economic Geography, University of Portsmouth, UK, 9-11, March.
- Bowman, E., Singh, H., 1990, Overview of corporate restructuring: trends and consequences, in Rock, M.L. and Rock, R.H.(eds.), *Corporate Restructuring: A Guide to Creating the Premium-Valued Company*, McGraw Hill, New York, 8-22.
- Cohen, W. and Levinthal, D., 1990, Absorptive capacity: a new perspective on learning and innovation, *Administrative Science Quarterly*, 35(1), 128-152.
- Cohendet, P., Kern, F., Mehmanpazir, B. and Munier, F., 1999, Knowledge coordination, competence creation and integrated networks in globalised firms, *Cambridge Journal of Economics*, 23(2), 225-41.
- Coriat, B. and Dosi, G., 1998, Learning how to govern and learning how to solve problems: on the co-evolution of competences, conflicts and organizational routines, in Chandler, A.D., Hagstrom, P. and Solvell, O.(eds.), *The Dynamic Firm: The Role of Technology, Strategy, Organization, and Regions*, Oxford University Press, Oxford, 103-133.
- Cowan, R., David, P. and Foray, D., 1999, The explicit economics of knowledge codification and tacitness, Paper presented to the Third TIPIK Workshop, University of Louis Pasteur, 24 April.
- Delbridge, R. and Kenney, M. and Lowe, J., 1998, UK manufacturing in the twenty-first century: learning factories and knowledge workers?, in Delbridge, R. and Lowe, J. (eds.), *Manufacturing in Transition*, Routledge, London, 224-241.
- Dodgson, M., 1993, Organizational learning: a review of some literatures, *Organization Studies*, 14(3), 375-394.
- Dosi, G. and Malerba, F., 1996, Organizational learning and institutional embeddedness: an introduction to the diverse evolutionary paths of modern corporations, in Dosi, G. and Malerba, F. (eds.), *Organization and Strategy in the Evolution of the Enterprise*, Macmillan, London.
- Dosi, G. and Marengo, L., 1994, Some elements of an evolutionary theory of organizational competences, in England, R.W. (ed.), *Evolutionary Concepts in Contemporary Economics*, University of Michigan Press, Ann Harbor, 157-178.
- Forbes, N. and Wield, D., 2000, Managing R&D in technology-followers, *Research Policy*, 29, 1095-1109.
- Foss, N.J., 1993, The theory of the firm: contractual and competence perspectives, *Journal of Evolutionary Economics*, 3, 127-44.
- Foss, N.J., 1998, The competence-based approach: Veblenian ideas in the modern theory of the firm, *Cambridge Journal of Economics*, 22, 479-495.
- Gertler, M., 2000, The production of industrial processes: regions, nation states and the foundations of regulations, in Barnes, T. J. and Gertler, M. S. (eds.), *The New Industrial Geography: Regions, Regulation and Institutions*, Routledge, London, 225-237.
- Gertler, M., 2001, Best practice? Geography, learning and institutional limits to strong convergence, *Journal of Economic Geography*, 1(1), 5-26.
- Hayes, J. and Allison, C.W., 1998, Cognitive style

- and the theory and practice of individual and collective learning in organizations, *Human Relations*, 51(7), 847-872.
- Hayter, R., 1997, *The Dynamics of Industrial Location*, Wiley, London.
- Hedberg, B., 1981, How organizations learn and unlearn, in Nystrom, P.C. and Starbuck, W. (eds.), *Handbook of Organizational Design, Vol. 1: Adapting Organizations to Their Environments*, Oxford University Press, Oxford, 3-27.
- Helfat, C.E., 1998, Simple indicators of adaptation versus rigidity in history-dependent firm activities and decision rules, *Industrial and Corporate Change*, 7(1), 49-75.
- Hodgson, G.M., 1998, Evolutionary and competence-based theories of the firm, *Journal of Economic Studies*, 25(1), 25-56.
- Hodgson, G.M., 1999, *Economics and Utopia: Why the Learning Economy is not the End of History*, Routledge, London.
- Hoggart, K. and Paniagua, A., 2001, What rural restructuring, *Journal of Rural Studies*, 17(1), 41-62.
- Huber, G.P., 1996, Organizational learning: the contributing processes and the literatures, in Cohen, M. and Sproull, L.S. (eds.), *Organizational Learning*, Sage, London, 124-162.
- Hudson, R., 1999, The learning economy, the learning firm and the learning region: a sympathetic critique of the limits to learning, *European Urban and Regional Studies*, 6(1), 59-72.
- Hudson, R., 2001, *Producing Places*, Guilford Press, New York.
- Kelemen, M., 1999, The myth of restructuring, competent managers and the transition to a market economy: a Romanian tale, *British Journal of Management*, 10, 199-208.
- Kenney, M. and Florida, R., 1993, *Beyond Mass Production: the Japanese System and Its Transfer to the U.S.*, Oxford University Press, Oxford.
- Kim, L., 1998, Crisis construction and organizational learning: capability building in catching-up at Hyundai motor, *Organization Science*, 9(4), 506-521.
- Kline, S., 1991, Government technology policy: what should it do?, Report INN-6, Department of Mechanical Engineering, Stanford University.
- Laitinen, E.K., 2000, Long-term success of adaptation strategies: evidence from Finnish companies, *Long Range Planning*, 33(4), 805-30.
- Langlois, R.N. and Robertson, P.L., 1995, *Firms, Markets and Economic Change: a Dynamic Theory of Business Institutions*, Routledge, London.
- Leroy, F. and Ramanantsoa, B., 1997, The cognitive and behavioural dimensions of organizational learning in a merger, *Journal of Management Studies*, 34(6), 871-894.
- Levinthal, D., 1991, Organizational adaptation and environmental selection - interrelated processes of change, *Management Science*, 2(1), 140-45.
- Levinthal, D., 1996, Learning and Schumpeterian dynamics, in Dosi, G. and Malerba, F. (eds.), *Organisation and Strategy in the Evolution of the Enterprise*, Macmillan, London, 27-41.
- Levitt, B. and March, J.G., 1996, Organisational learning, in Cohen, M.D. and Sproull, L.S. (eds.), *Organizational Learning*, Sage, London, 516-540.
- Liedtka, J., 1999, Linking competitive advantage with communities of practice, *Journal of Management Inquiry*, 8(1), 5-16.
- Lovering, J., 1989, The restructuring debate, in Thrift, N. and Peet, R. (eds.), *New Models in Geography [Vol. I]*, Unwin Hyman, London, 198-223.
- Lowe, J., Delbridge, R. and Oliver, N., 1997, High-performance manufacturing: evidence from the automotive components industry, *Organization Studies*, 18(5), 783-798.
- McGrath-champ, S., 1999, Strategy and industrial

- restructuring, *Progress in Human Geography*, 23(2), 236-252.
- Metcalf, J. S. and Calderini, M., 1997, Compound learning, neural nets and the competitive process, Working Paper no. 1, Centre for Research on Innovation and Competition (CRIC), University of Manchester.
- Nelson, R. and Winter, S., 1982, *An Evolutionary Theory of Economic Change*, Belknap Press, Cambridge.
- Nohria, N. and Gulati, R., 1994, Firms and their environments, in Smelser, N. J. and Swedberg, R. (eds.), *The Handbook of Economic Sociology*, Princeton University Press, Princeton, NJ, 504-528.
- Nooteboom, B., 1999, Innovation, learning and industrial organisation, *Cambridge Journal of Economics*, 23(2), 127-150.
- Nystrom, P. C. and Starbuck, W., 1984, To avoid organizational crises, unlearn, *Organizational Dynamics*, 13 (1), 53-65.
- Odgaard, M. and Hudson, R., 1998, The misplacement of learning in economic geography, mimeo, Department of Geography, University of Durham.
- Penrose, E., 1959, *The Theory of the Growth of the Firm*, Oxford: Oxford University Press.
- Polanyi, M., 1967, *The Tacit Dimension*, Routledge and Kegan Paul, London.
- Prahalad, C. and Hamel, G., 1990, The core competence of the corporation, *Harvard Business Review*, 68(3), 79-91.
- Rosenberg, N., 1996, Uncertainty and technical change, in Landau, R. et al. (eds.), *The Mosaic of Economic Growth*, Stanford University Press, Stanford, CA, 334-356.
- Saviotti, P.P., 1996, *Technological Evolution, Variety and the Economy*, Edward Elgar, Cheltenham.
- Sayer, A. and Walker, R., 1992, *The New Social Economy: Reworking the Division of Labor*, Blackwell, Oxford.
- Selznick, P., 1957, *Leadership in Administration*, Harper & Row, New York.
- Sharfman, M. and Dean Jr., J., 1997, Flexibility in strategic decision making: informational and ideological perspectives, *Journal of Management Studies*, 34(2), 191-217.
- Teece, D.J., Pisano, G., and Shuen, A., 1997, Dynamic capabilities and strategic management, in Foss, N. J. (ed.), *Resource, Firms and Strategies: A Reader in the Resource-based Perspective*, Oxford University Press, Oxford, 268-285.
- Tushman, M.L. and O'Reilly, C.A., 1996, Ambidextrous organizations: managing evolutionary and revolutionary change, *California Management Review*, 38 (4), 8-30.
- Usui, C. and Colignon, R.A., 1996, Corporate restructuring: converging world pattern or societally specific embeddedness?, *The Sociological Quarterly*, 37 (4), 551-576.
- Wenger, E., 1998, *Communities of Practice: Learning, Meaning, and Identity*, Cambridge University Press, Cambridge.
- Zack, M., 1999, Managing codified knowledge, *Sloan Management Review*, 40(4), 45-58.

(접수 : 2007. 11. 6, 채택 : 2007. 11. 28)