ORGANIZATIONAL KNOWLEDGE CREATION AND THE ROLE OF MIDDLE MANAGEMENT

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**ABSTRACT**

A new perspective in roles of managerial behavior is proposed. It is built upon an emerging view of the organization as a matrix for knowledge creation; in this view people in an organization interact with each other to make sense out of their activities and create knowledge.

Middle managers, together with top management, have their own functions to create knowledge. These functions are more relevant for innovative middle managers. Top management may construct a grand strategy; but middle managers have to engage in sense making activities on a hands-on basis.

The paradigm of organizational knowledge creation and the notion of middle-up-down management have been presented in our previous studies of major Japanese firms. The specific aim of this paper is to create a framework to measure managerial behavior from the knowledge creation perspective; and relate them to contextual/environmental factors, career factors, and performance in terms of enhancement of organizational knowledge.

As the paradigm is drawn primarily from Japanese experiences, this framework should pave a way to future comparative studies.
This paper presents an emerging perspective to understand a strategic and creative role of middle management based on the theory of organizational knowledge creation. It proposes a framework for an international comparative research on middle management behavior.

1. Knowledge Creation and Middle Management

We have attempted to build a new theory of management from the viewpoint of "organizational knowledge creation." We have conceptualized the management of the process of organizational knowledge creation as "Middle-up-down management" in comparison with oft-mentioned top-down or bottom-up management style. It emphasizes the critical role of middle managers in the knowledge creation process, and suggests a possibility of a new management paradigm with some recent researches on "entrepreneurial" or "transformational" middles.

A. Organizational Knowledge Creation

Organizational behavior of firms can be conceptualized as a process of creating, improving, and maintaining knowledge. Among others, creation of new knowledge most commonly observed in the area of technological and product innovation has critical importance today. There are two types of knowledge; explicit knowledge that is objective and can be expressed by language, and tacit knowledge that is highly personal and thus is hard to articulate and communicate. Examples of the former are scientific formulations and product specifications, while the latter includes technical skills embodied in everyday knowledge of craftsperson and cognitive skills that characterize a personal point of view and belief.

Knowledge is created in organizations through synergistic, continuous interaction of the two types of knowledge.

There are four modes of organizational knowledge creation. **Externalization** is conversion of tacit knowledge into explicit one, while **internalization** is that of explicit into tacit. **Socialization** is the conversion of one's tacit knowledge into another's tacit knowledge, and **combination** is that of one's explicit knowledge to another's. The innovative or transformational process of an organization can be better understood in terms of this knowledge creation process. Traditional information processing paradigm is to give way to an emerging paradigm of organizational knowledge creation. The succession of the four modes creates an upward spiral of organizational knowledge and accelerates further knowledge creation of higher level.

From this perspective, Japanese manufacturing excellence is attributable to their experience-oriented, hands-on methodology of knowledge. It presents a contrast to the language-oriented methodology of Western firms. Experience is analogue-type, processual knowledge of dynamic nature. In contrast, language is static, digital-type knowledge that shows a state of object at a point of time. The relationship between analogue and digital knowledge is mutually compensative. It is like the ground-and-figure relationship discussed in Gestalt psychology. Since analogue knowledge is mainly tacit and embodied in a person, it is difficult to be articulated and transferred to others. In the social context of lower labor mobility in Japan, however, the formation and succession of individual expertise is highly useful for accumulation of production technology. Japanese firms have succeeded in continuous organizational conversion of analogue, tacit knowledge embodied in shop floor workers into digital, explicit knowledge typically found and embodied in most sophisticated production facilities.

**B. Middle-Up-Down Management**

The management style that Japanese firms have developed for the organizational conversion of analogue to digital knowledge is what we call "middle-up-down management." The concept of top-down and bottom-up management pervades management research and the popular business literature. Top-down management emphasizes the process of implementing and refining decisions made by top management as they are transmitted to the lower levels of the organization. Bottom-up management emphasizes the influence of information coming up from lower levels on management decision making. The dominant management style that characterizes a firm is located somewhere on the continuum between these two types.

However, if we carefully examine the innovation processes in Japanese excellent firms, we find a new pattern that does not fit on the continuum between top-down and bottom-up. It is a process that resolves the contradiction
between the visionary but abstract concept of top management and the experience-grounded concepts originating from the market or on the shop floor. It could be done by assigning a more central role to middle managers. This process, which is particularly well suited to the era of fierce market competition and rapid technological change, is dubbed as "middle-up-down management."

The essential logic of the model is that top management creates a vision or dream, and middle management creates and implements more concrete concepts to solve and transcend the contradictions arising from gaps between what exists then and what management hopes to create. In other words, top management creates an overall theory, while middle management creates a middle-range theory and tests it empirically within the framework of the entire organization.

C. Strategic Role of Middle Management

As illustrated above, we have found that middle management plays a key role to facilitate the process of organizational knowledge creation. They can be best conceptualized as "field-builders" who set up and maintain a field for sharing experiences and for continual dialogue among team members. They also assume a responsibility of "knowledge engineers," in a metaphoric sense, who elicit tacit knowledge of knowledge creating team. This finding seems to correspond to recent findings in other fields of management research.

There has been a growing concern over the role of middle management in strategic management. If a corporate strategy were completely formulated at the apex of an organization, then the role of middle management would be just a transmitter of the predetermined policy. The past decade has witnessed an importance of organizational culture. It is suggestive of the limitation of the view of strategy as an analytical tool at the top (cf. Peters and Waterman, 1982)3.

Even a little analytical strategy has to be "translated" into hands-on terms so that people at middle and lower level has to make sense out of the formal strategic statement. Without the efforts of middle managers, the analytical strategy could be just a paper document. Kotter (1982)4 observes that successful general managers create an "agenda." It is consistent with a formal strategy; but it is much more realistic and at the same time more visionary.

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In constructing a meaningful agenda, general managers have to interact with many other people in and around the organization who have a stake for this agenda setting. The network-building, on the one hand, helps brush up the contents of agenda. On the other hand, it entails a smoother cooperation among those stakeholders in making the agenda work. In a sense, agenda setting and network building are vehicles to create organizational knowledge: agenda itself is the carrier of an emerging knowledge; and the interpersonal network is an input of pieces of knowledge and resources.

2. Theoretical Review on Middle Management Behavior

Before presenting a new framework for an empirical research on middle management behavior, we review relevant theories and researches, and clarify their limitations in terms of our theoretical framework. Leadership studies, descriptive studies of daily managerial behavior, and the studies in transformational leaders are briefly reviewed here.

First, leadership studies are replete with many kinds of empirical researches. It is almost customary to say that leadership is the most studied and the least understood area in organizational behavior. One reason for this sluggish progress in this field is the lack of the variety of leadership measures. There are two limitations related to that. For one thing, as there are some dominant scales as the LDBQ Form XII in Ohio studies, researchers feel less autonomy in creating a new scale relevant for a specific research objective. For another, the dominant scales provide only a few dimensions of leader behavior, most commonly task related and human related dimensions. For motivational studies of leadership, it may be enough. However, in order to capture the role of middle manager as the provider of a field for knowledge creation, we have to come up with our own, brand new measures of knowledge creating behavior of middle managers.

The underlying assumptions of most of the leadership studies, from the perspective of organizational knowledge creation, is that leaders must know more than their subordinates in getting things done. If leaders believe they know enough, there remains no room for leaders to interact with subordinates, people from other departments, and those outside the organization to create a new knowledge. Without a few exceptions, such as Vroom and Yetton (1973)5, leadership theorists pay little attention to the function of knowledge creation.

Second, separated from the leadership studies, there has been a line of descriptive studies of daily behavior of managers such as Carlson (1951), Stewart (1967), and Mintzberg (1973) to name a few. These studies report much more realistic views of managerial behavior. For instance, managers spend only less than half of their time with subordinates. They interact with many people outside their unit. As a result, their interaction pattern is fragmented. They would like to be exposed to a fresh information at the risk of fragmenting their time.

To capture the complexity and variety of managerial daily life, these studies are useful. Their foci on the interaction pattern are relevant to the present study. In discussing the interaction with various people, the studies end up with many statistical figures; for instance, Stewart (1967) reports that middle managers spend 37 percent of their time with subordinates, 11 percent with superiors, 35 percent with peers in other departments, and 16 percent with people outside the firm. The hard data are important; but what is more intriguing is the theoretical perspective to explain why managers have to interact with others to make things happen. The descriptive studies of managerial behavior fail to give any kind of comprehensive theoretical framework. The knowledge creation perspective in this paper is to fill this theoretical gap.

Third, as our interest in organizational knowledge creation is derived from our intention to explain organizational innovation and changes, the current studies of transformational leaders (Burns, 1978; Kanter, 1982,1983; Bass, 1985) are pertinent for the present study. Burns (1978) examines transformational leaders in history ranging from Martin Luther King to John F. Kennedy. He contrasted them with mediocre transactional leaders. While transactional leaders are keen on giving rewards in exchange for contribution (think of the spoil system in politics), transformational leaders are much more visionary and intellectual. It should be noted that without knowledge creation transformation would rarely occur -- the French Revolution occurred with intellectual efforts embodied in the Encyclopedia.

The studies on transformational leaders, all in all, shed light upon power of vision and intellectual stimulation. As

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such, their studies are relevant to our studies. The present paper, however, is much more theoretically driven. In other words, for the previous studies under the name of transformational leadership, transformation and changes come first; but the knowledge creation (which is a further antecedent to any kind of serious change) in itself is the central research concern.

3. Perspectives for International Comparative Research

The theory of organizational knowledge creation and middle-up-down management has been developed based on rich case studies mainly on excellent Japanese companies. Even though we have conducted case studies on selected U.S. companies such as 3M and General Electric, the prime objective has been to theorize knowledge creation in Japanese companies through constant comparative method. Now we have come to the stage of operationalizing various working hypothesis included in our theory and of empirically testing the applicability in a global context.

As shown above, there has been limited number of researches on the behavior of transformational, knowledge-creating middles, and none of them conducted any cross-country survey. Here we propose a research design of an international comparative research on middle management from the viewpoint of organizational knowledge creation.

A. Research Framework

Our primary aim for international comparative research is to clarify the role of middle management in the process of organizational knowledge creation within different managerial context. We can hypothesize that even though organizational knowledge creation is a universal phenomenon, its practical application and the role middle management take may differ by each country's managerial context. We try to compare such factors as actual knowledge creating activities conducted by middle management, contextual and environmental conditions surrounding them, and types and amount of knowledge created as performance indicators and so forth. We will also develop a causal model among these factors, and verify our working hypothesis.

B. Methods

The proposed research will be conducted as a questionnaire survey to be answered by middle management of
U.S., European, and Japanese firms. The questionnaire will be developed by adding to and modifying our past questionnaire that is proved statistically valid through preliminary data from Japanese companies. Potential categories of items are as follows (examples in parenthesis).

1) Knowledge Creating Activities
   - Field Building (task team nomination, vision and task declaration, role assignment, etc.)
   - Socialization (facilitating co-experience of team members, sharing experience with other sections, customers, and suppliers, etc.)
   - Externalization (tacit knowledge elicitation, use of metaphors and figurative images, manual making and updating, etc.)
   - Combination (database building, acquiring and providing external information, etc.)
   - Internalization (frequent experimentation, encouraging trial and error, etc.)
   - Process Acceleration (encouraging essential dialogue, deadline setting and time keeping, etc.)

2) Contextual/Environmental Factors
   - Facilitating Practices (inter-divisional and inter-sectional rotation, good communication between R&D section and sales/marketing section, frequent use of task forces and project teams, face-to-face contact with customers and suppliers, etc.)
   - Effect of External/Internal Environment (corporate vision or mission, strategy, formal organizational structure, organizational climate)
   - Relation to Top Management (middle's recognition of and expectation to top; creating sense of crisis, advocating challenging goals, request for continual self-renewal, authority delegation to middle, etc.)
   - Relation to Colleagues and Subordinates (team coordination, information flow, etc.)
   - Nature of Task (task uncertainty and interdependency)
   - Time Allocation (by work-log analysis)

3) Career-related Factors
   - Qualification (required knowledge and skill at present and in future; generosity to new ideas, integrating various information, intellectual curiosity, insightfullness, etc.)
   - Ideal of Middle (ideal-actual gap and obstacles)
   - Career Path (expectation for promotion)

4) Performance Indicators
   - Types and Amount of Created Knowledge (patent, articles, experience, expertise, etc.)
   - Job Satisfaction
   - Self-Fulfillment
4. Conclusion

The research we propose above will be the first large-scale international survey on middle management and organizational knowledge creation on a quantifiable basis. Our central hypothesis is that organizational knowledge creation will be activated to the degree middle management play the role of field-builder and knowledge engineer. From a comparative perspective, we can hypothesize that Japanese middle managers devote more effort on and consequently are good at internalization and socialization activities, while Western middle managers put much emphasis on and are skilled in combination and externalization activities. Our research will open up a new perspective for such fields of studies as management, organizational behavior, and technological innovation.