

Knowledge Management and Organizational Competence

Edited by
RON SANCHEZ

OXFORD
UNIVERSITY PRESS

Creation of Managerial Capabilities through Managerial Knowledge Integration: A Competence-Based Perspective

FRANS A. J. VAN DEN BOSCH AND RAYMOND VAN WIJK

INTRODUCTION

During the last few decades, the field of strategic management seems to have lost its emphasis on management. Although different scholars (e.g. Coff 1997; Pennings, Lee, and van Witteloostuijn 1998; Pfeffer 1998) have emphasized human capital as being of strategic importance to firm behavior and performance, the field has largely failed to recognize management capability *per se* as a more specific human asset (Bartlett and Ghoshal 1993; Donaldson 1995; Hilmer and Donaldson 1996). The resource-based view of the firm (e.g. Grant 1991; Wernerfelt 1984) also largely neglects to address thoroughly the role of managers in the competitive equation. The loss of emphasis on management has brought on "a silent, ongoing battle between weak signals from the realm of management practice and strong, well-developed paradigms in established fields of scholarly inquiry" (Prahalad 1995: p. iii). Mahoney and Sanchez (1997) have addressed this issue by proposing an interactive, reciprocating process model to reconnect the domains and theories of strategic management practice and research. Thus, at least within the competence-based view, we now see a return to explicitly considering the role of management itself in organizational competence.

Edith Penrose (1959) commented on the key role of managers more than forty years ago in her seminal work on the resource-based view. In Penrose's view, management's role is two-fold: (1) the management *of* resources, and (2) management *as* a resource *per se*, taking the view that managers carry and employ *managerial resources* and *capabilities*. Both are closely related because managers as resources render services for the management of other resources. In addition, the key role of managers is suggested by the view that "of all various kinds of productive services, managerial services are the only type which every firm, because of its very nature as an administrative organization, must make use of" (Penrose 1959: 48).

An earlier version of this paper was presented at the Fourth International Conference on Competence-Based Management, held June 18–20, 1998, in Oslo, Norway. We gratefully acknowledge the helpful comments and suggestions of Max Boisot, Lex Donaldson, Aimé Heene, and the conference participants. In particular, we would like to thank Ron Sanchez for many constructive criticisms and suggestions.

The theory of competence-based competition builds on the indispensability of management in its view of firms as open systems that are guided by a strategic logic derived from *managerial cognitions* and governed by *management processes* that coordinate asset stocks and flows (Hall 1997; Sanchez and Heene 1996). Most intellectual inquiries building on Penrose's growth theory (e.g. Ghoshal, Hahn, and Moran 1997; Mahoney 1995) and studies arguing for a "managerial action perspective" in resource-based theories (Martens, Vandenbempt, and Bogaert 1997) share similar interests in understanding the management of resources. But, apart from the few noteworthy articles treating managers as a key class of resources (e.g. Barney 1994; Castanias and Helfat 1991), insights into managers as resources, and the *managerial* resources and capabilities they carry, remain sparse.

The competence perspective has emphasized the importance of *organizational* resources and capabilities, particularly organizational knowledge (Conner and Prahalad 1996; Hall 1997; Sanchez 1997). In investigating the management of organizational knowledge creation processes, the literature on new organizational forms has explicitly focused on management processes and resources at different managerial levels (see e.g. Bartlett and Ghoshal 1993, 1997; Hedlund 1994; van Wijk and van den Bosch 2000a). In particular, Bartlett and Ghoshal's (1997) work on management competences treats managerial knowledge as a pivotal managerial resource. Nevertheless, although the concept of managerial knowledge has attracted the interest of management scholars such as Fayol (1949) and Mintzberg (1973, 1994), it remains relatively unexplored. It is by integrating and applying managerial knowledge, however, that managers develop managerial capability (cf. Grant 1996) and render the service of their resource (Penrose 1959). Moreover, managers' own process for learning and capability development play a critical role in organizational knowledge creation processes and in the adoption of new organizational forms that improve dynamic organizational capabilities (Hedlund 1994). Given these key services of managers as a resource, it can be argued that we should now put "*managerial* knowledge at the forefront of competitive advantage" (Floyd and Wooldridge 1996: 23, emphasis added).

This paper focuses on defining what managerial knowledge and managerial capabilities are, what services are rendered by them, how they interrelate with organizational knowledge creation processes, and how front-line, middle, and top managers can contribute to a firm's organizational competences. The agenda of the paper is as follows. The next section examines organizational knowledge creation and the essential role of managerial knowledge creation in that process. The third section defines key categories of managerial knowledge. In the fourth section, the paper explores ways in which individual managers' knowledge becomes integrated to create managerial capabilities in an organization. A conceptual framework for analyzing managerial knowledge integration is developed in the fifth section and applied to three levels of management—front-line managers, middle managers, and top managers.

ORGANIZATIONAL KNOWLEDGE AND ITS CREATION

In the search to explain the competitive successes of firms, management scholars have paid attention to knowledge resources and knowledge creation processes as primary sources of competitive advantage. Because knowledge serves as the base upon which capability is formed, knowledge may create barriers to imitation by rivals. Knowledge may therefore account for the larger part of a firm's value added. Knowledge has been characterized as "the most strategically-significant resource of the firm" (Grant 1996: 375). In dynamic environments, knowledge creation processes are especially crucial, because new knowledge resources enable a firm to respond to the changing demands imposed by the environment over time (Nonaka and Takeuchi 1995).

Inquiries into knowledge and knowledge creation thus far have highlighted the roles of tacit versus explicit knowledge related to products and services. Much less emphasis has been placed on knowledge creation in "higher-order" managerial capabilities (Sanchez and Heene 1996). Furthermore, although knowledge has been recognized as residing at both individual and organizational levels (Spender 1996a), most of what we refer to as higher order capabilities are usually characterized as organizational in nature (e.g. Kogut and Zander 1992; Teece, Pisano, and Shuen 1997; van den Bosch, Volberda, and de Boer 1999). As we shall now argue, however, higher order capabilities may also reside at the level of the individual manager.

Tacit versus explicit knowledge

Following Penrose (1959) and Polanyi (1958), management research generally makes a distinction between explicit and tacit forms of knowledge. Arguments have been offered for the strategic importance of both explicit and tacit knowledge (e.g. Nonaka and Takeuchi 1995; Sanchez 1997; Spender 1996b; Winter 1987). In contrast to explicit knowledge, tacit knowledge is difficult to articulate, codify, and teach since it emanates from context-specific personal experience and learning-by-doing. Tacit knowledge is also relatively immobile and subject to limited appropriability and significant causal ambiguity (from an organizational knowledge perspective). Tacit knowledge, therefore, inhibits imitation by rivals, but it also retards internal transfer and replication. Explicit knowledge, because it is articulated, codified, and teachable, is easier to transfer internally, but it may also be susceptible to diffusion and imitation by rival firms.

The relative strategic value of explicit or tacit knowledge depends on the content of the knowledge and the process and context in which each must be utilized (e.g. Liebeskind 1996). Nevertheless, the knowledge *creation processes* of firms require interaction between *both* tacit *and* explicit forms of knowledge. According to Nonaka and Takeuchi (1995), the knowledge creation process of firms is a four-phase process in which tacit knowledge is converted into explicit knowledge, and vice versa. Similarly,

Boisot (1995, 1998) points out that the knowledge creation process of a firm may be seen as a "social learning cycle" (SLC) in which knowledge cycles through three dimensions in the "information space" of firms: abstraction, diffusion, and codification of knowledge.

Besides absorbing new external knowledge (van den Bosch, Volberda, and de Boer 1999), two additional ways of creating knowledge at the organizational level are the replication of knowledge among organizational members without alteration of its content (Kogut and Zander 1992; Nelson and Winter 1982) and the integration of different kinds of knowledge into a new body of knowledge (Grant 1996). In knowledge integration processes, individuals' specialized knowledge serves as the basis of their ability to perform individual tasks. These specialized capabilities of individuals must be integrated to create *organizational* capabilities (Grant 1996). Tsoukas argued that in this process "[t]acit knowledge is the necessary component of *all* knowledge . . . to split up tacit and explicit knowledge is to miss the point—the two are inseparably related" (1996: 14, original emphasis). Tacit knowledge often takes the form of rules and routines (see also Nelson and Winter 1982), and much explicit knowledge is built on a foundation of tacitly shared knowledge.

Organizational level knowledge: products and services knowledge

As we have noted, much of the literature on knowledge and knowledge creation focuses on *organizational* processes. In so doing, discussions of knowledge and knowledge creation are often focused on the way in which knowledge makes it possible to earn profits and rents through its deployment and application to products and services. For example, Grant (1996) illustrates the need for knowledge to be integrated to form an *organizational* capability by analyzing processes of knowledge integration in a manufacturer of private-branch telephone exchanges.

Related to Grant's notion of knowledge integration is Henderson and Clark's (1990: 10) proposition that organizational "innovations that change the way in which the components of a product are linked together" require creation of new kinds of "architectural" product knowledge. Elaborating on the impact of knowledge about architectural linkages between components in products, Sanchez (Ch. 11, this volume) and Sanchez and Mahoney (1996) propose that creating modular architectures for product designs can improve organizational knowledge creation processes, as well as making possible significant flexibility and modularity in organizational design. They argue that modularity is therefore an important form of *architectural* knowledge about how to interrelate components in a design. Grant and Baden-Fuller (1995) argue that new forms of product knowledge are most likely to be created through interorganizational collaborations when the knowledge domains and product domains of firms are not congruent, thereby allowing new combinations of knowledge to be discovered.

Higher-order capabilities

When individuals perform activities, they are often guided by rules and practices that are taken for granted (Tsoukas 1996). The same goes for knowledge creation. Even though knowledge creation is likely to be based upon a tacitly shared background (Tsoukas 1996), codification processes in knowledge creation must be governed by "a coding repertoire . . . as well as a body of accumulated experience guiding the use of that repertoire—i.e. a coding convention" (Boisot 1995: 168) that serves as a vehicle for articulating and structuring knowledge. Similarly, socialization, externalization, internalization, integration, and replication require an infrastructure of organizational processes, both formal and informal. In organizational knowledge creation, managers who organize, coordinate, and lead provide an essential infrastructure for the learning organization (Hedlund 1994; Nonaka and Takeuchi 1995; Penrose 1959).

The competence perspective views firms as open systems in which asset stocks and flows, including knowledge and knowledge creation processes, are coordinated and governed by *management processes* and a strategic logic derived from *managerial cognitions* (Sanchez and Heene 1996). Management processes that support the creation and use of organizational knowledge are essential in a "firm's abilit[ies] to integrate, build, and reconfigure internal and external competences to address rapidly changing environments," and thus are an important contributor to a firm's dynamic capabilities (Teece, Pisano, and Shuen 1997: 516). Therefore, in addition to managing resources, management processes are a resource (cf. Penrose 1959). It is in this sense that *managerial knowledge* is "a different kind of knowledge" (Sanchez 1997: 177) that enables a firm to integrate, build, and renew other forms of organizational knowledge. Thus, managerial knowledge *creation* processes that are essential in developing the strategic logic of a firm (Sanchez, Heene, and Thomas 1996) are "higher-order" capabilities that can create dynamic capabilities in an organization, and therefore may be considered metacapabilities (Collis 1994).¹

MANAGERIAL KNOWLEDGE: SOME ANTECEDENTS

Mahoney (1995: 97) argues that besides "competition between heterogeneous 'bundles of resources' . . . competition between heterogeneous 'mental models' needs to be considered in order to understand competitive advantage." Barney (1994) proposed at a more general level that managers' experiences, intelligence, and cognitive style may stand the tests of value, rareness, imperfect imitability, and imperfect substitutability necessary to be considered a strategic resource. Castanias and Helfat (1991) propose that top management may constitute a resource in terms of managerial skills from

¹ Here the principle of infinite regress apparently can be applied as well, which is the capability to develop the capability to create managerial knowledge, and so forth. Nevertheless, as Collis (1994: 150) suggests, "although the source of sustainable competitive advantage can be found in any one of the—very large—number of levels, valuable capabilities are dependent on the context of industry and time." We share that view in arguing that the value of creating new knowledge is dependent on time and context.

which differential rents may flow, and therefore may be a source of sustainable competitive advantage. Both Barney and Castanias and Helfat thus acknowledge that managers—and in particular their knowledge—do matter in the competitive equation.

The fields of organization theory and organization behavior also offer another perspective on the nature of managerial knowledge. Following Koontz's notion of managing, managerial knowledge may be defined as knowledge regarding "the art of getting things done through and with people" (1964: 15). Earlier, Fayol (1949: 7) referred to managerial knowledge as comprising general education "not belonging exclusively to the function performed," special knowledge "peculiar to the function," and experience "arising from the work proper." More recently, Mintzberg (1994) has argued that managers have

values . . . [together with] a body of experience that, on the one hand, has forged a set of skills or competences, perhaps honed by training, and on the other, has provided a base of knowledge . . . [which] is, of course, used directly, but . . . also converted into a set of mental models . . . [that] determine . . . his or her style of managing. (p. 12, original emphasis)

Paralleling Ewing (1964), Mintzberg treats executive experience, skills and competences, and knowledge separately. The perspective of Grant (1996) and Nonaka and Takeuchi (1995) on knowledge creation and integration, however, suggests that all these aspects of managing are intermingled and build upon each other. But the conceptual distinction between skill and knowledge remains important: "skill" refers to something one "does," while "knowledge" is something one may "have" but does not necessarily act upon (cf. Simon 1985).

MANAGERIAL KNOWLEDGE INTEGRATION

The intermingling of skill and knowledge is essential in integrating managerial knowledge into managerial capabilities and competencies (Grant 1996). As suggested in Figure 8.1, at the most basic level, several forms of managerial knowledge components (know-why, know-what, know-how, know-who, know-where, know-when) are the building blocks of managerial knowledge domains relating to functional, technical, company-specific, and environmental matters. In turn, these knowledge domains are the building blocks of the integrated managerial knowledge that each individual manager develops in performing his or her job. When integrated organizationally, individual managers' capabilities collectively constitute a firm's managerial capabilities.

Knowledge components

To manage knowledge and knowledge creation effectively within an organization, "managers need to understand not just the stocks of knowledge within the firm . . . but also how to manage the actual and potential transfers and diffusions (flows) of knowledge within and across the boundaries of the organization," (Sanchez 1997: 174). Accomplishing this requires recognizing the basic differences in the *contents* of various

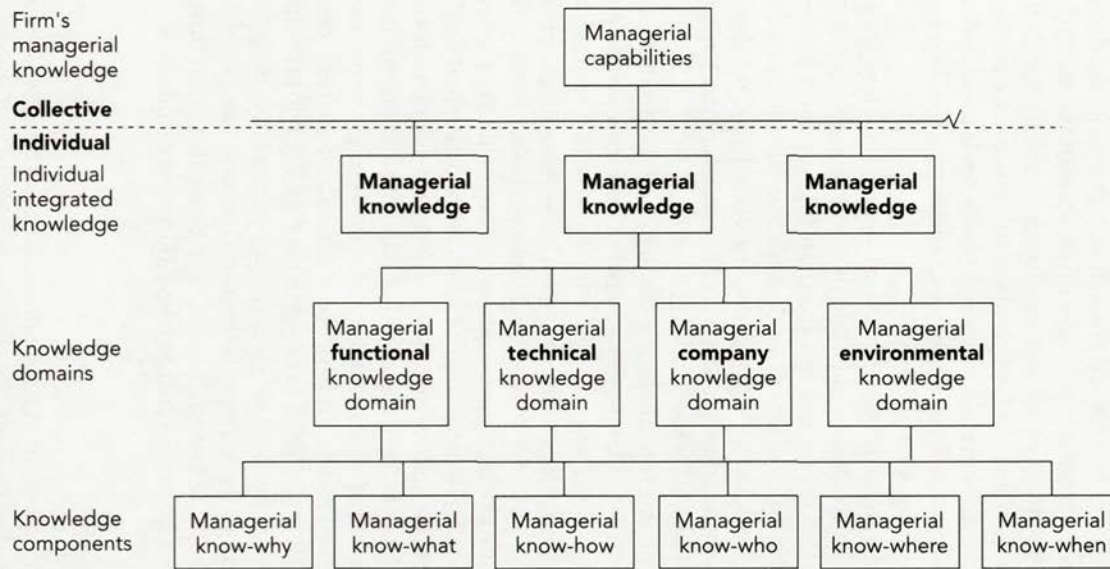


FIG. 8.1 *A conceptual framework of managerial knowledge integration.*

Source: adapted from Grant 1996.

kinds of knowledge. For example, Sanchez (1997) distinguishes know-how, know-why, and know-what forms of knowledge that correspond to state, process, and purpose forms of knowledge about a system, respectively. Sanchez then develops the concept of a product as a system, but of course, the concept of a system can also include any technical method or function, the firm itself, and its environment.

According to Sanchez (1997: 176–7), know-how is practical knowledge about “how elements of a system are interrelated in the current state of the system.” Know-why is knowledge about why the parts of a system work together; this is the theoretical knowledge needed to understand how component parts can be configured in a system design to produce some overall function. Know-what is characterized as strategic knowledge about “what courses of action are available to a firm” for using its know-how and know-why forms of knowledge.

In an organizational context, *know-how* is knowledge about how the elements of an existing system are related to each other, and therefore resembles a practical or procedural form of architectural knowledge about an organization. *Know-why*, then, is knowledge about why the elements of an organization function together and enable the organization to work in the way it does. Analogously, *know-what* is managerial knowledge of the strategic purposes which could be accomplished by applying know-how and know-why knowledge about an organization.

Since management involves managing through and with other people (Koontz 1964), it is also important to know *who* governs or performs certain elements of the organization as a system, and so *know-who* should also be included as a basic building block of managerial knowledge. For example, know-who might refer to knowing which R&D staff members have knowledge about a particular process. Similarly, since managing may also involve accessing resources and capabilities of the firm in different geographical locations, *know-where* may be another important building block of managerial knowledge. Boone and van den Bosch (1996), for example, discuss the importance of managerial knowledge of geographical differences in organizations in Europe. Finally, since management is also concerned with timing, *know-when* constitutes another basic building block in strategy formulation and strategic decision-making (van den Bosch and de Man 1997). As suggested in Figure 8.1, to accomplish a new (or existing) organizational purpose or goal, managers must use their know-how and know-why knowledge to design an organizational process capable of accomplishing the purpose or goal—the know-what—and in so doing they must integrate into this design specific knowledge of *who* should take action, *where*, and *when*.

Knowledge domains

The basic building blocks of managerial knowledge must be integrated within a number of specific knowledge domains. This implies the existence of another form of managerial knowledge at a higher level, a form of managerial knowledge that interrelates the basic knowledge building blocks within the several kinds of activities a manager must perform (see Figure 8.1).

In explaining the emergence of cultural resources and an unique set of organiza-

tional capabilities, skills, and abilities, Castanias and Helfat (1991) employ Katz's (1955) classification approach for identifying the skills of a manager. Katz identifies *technical skills* as "an understanding of, and proficiency in, a specific kind of activity, particularly one involving methods, processes, procedures, or techniques" (p. 34). *Human skills* are characterized as the "ability to work effectively as a group member and to build cooperative effort within a team" (p. 34). *Conceptual skills* are described as "the ability to see the enterprise as a whole" (p. 36). However, because this classification does "not distinguish between different organizations and environments in which the skills are employed," Castanias and Helfat (1991: 159) proposed an alternative classification configured around "generic skills," "type of business or industry-related skills," and "firm-specific skills." Given our premise that organizational skills and capabilities are formed by managers' activities in integrating knowledge, we find it useful to combine the framework of Katz with that of Castanias and Helfat to identify technical, human, and conceptual forms of *managerial* knowledge, as well as generic, industry-related, and firm-specific managerial knowledge.^{2,3}

The knowledge a manager must use in performing his or her function is the result of simultaneously integrating generic knowledge, industry-related knowledge, and firm-specific knowledge. This is reflected in Simon's (1985:17) conjecture that

managerial knowledge falls into two main categories: on the one hand, knowledge about human behavior in organization and about how organizations operate, and, on the other, knowledge about the content of the organization's work—knowledge that may be largely specific to an industry or even to a particular company or plant.

Adding Simon's distinction between, in essence, *process* and *content* forms of knowledge, we now have the essential dimensions of a useful framework for the classification of *knowledge domains* in managerial work.

As illustrated in Figure 8.1, the knowledge domains within which managerial knowledge is formed can be arranged in four domains: (1) managerial *functional* knowledge, (2) managerial *technical* knowledge, (3) managerial *company* knowledge, and (4) managerial *environmental* knowledge. In this classification, Fayol's (1949: 7) notion of functional knowledge is adopted to address knowledge "peculiar to the function" of the manager. This form of knowledge includes knowing what roles a manager needs to play in scheduling, leading, controlling, and communicating with other people. (For a review of managerial roles, see e.g. Drucker 1973; Mintzberg 1973, 1994.) This essentially coordinating role of managers requires knowledge of how to interrelate effectively the functional areas making up a firm, such as R&D, manufacturing, human resources, marketing, and finance. Technical knowledge, in turn, requires knowledge about the methods, processes, procedures, and techniques specific to each area of functional activity.

² As will be explained later in this chapter, Castanias and Helfat (1991) argue that generic skills, industry-related skills, and firm-specific skills have an increasing potential for generating managerial rents.

³ An additional classification is provided by Sternberg (1997), who distinguishes analytical, practical, and creative intelligence to show that IQ (as commonly measured) is only one part of managerial intelligence. This classification takes us beyond the scope of this paper, but clearly suggests an interesting direction for further expansion of our framework.

Company-specific knowledge here reflects Katz's (1955) and Simon's (1985) notion of knowledge about how a specific organization operates. Expanding their observations, we add the perspective that this form of managerial knowledge also includes knowing what the organization stands for, and what values are held by various individuals and groups within the firm. Environmental knowledge includes understanding how to work with external providers of key resources (van den Bosch and van Riel 1998), as well as market knowledge of customers' preferences, relevant macroenvironmental developments, and competitors.

Individual managerial knowledge

At the highest level of individual knowledge, management knowledge domains are integrated in the form of an individual's managerial knowledge. This knowledge may be in tacit form, because as managers gain experience in managing over time, they may develop and follow personal routines for managing (Nelson and Winter 1982). Although managers often create documents in various forms to communicate processes to be followed in their organization, they often do not rely exclusively on such documents while "doing" their job. Therefore, this form of managerial knowledge remains to some extent, and for some managers to a large extent, in tacit form.

In performing his or her job, a manager must integrate the four knowledge domains into a coherent set of knowledge that may be idiosyncratic to a particular context. In the context of organizational knowledge creation, therefore, individual managers apply a "code" of personal integrated knowledge in which "a personal element, to some extent incommunicable, remains [as] a source of individuation and differentiation in the skill with which the code is applied" (Boisot 1995: 170). As managers develop and integrate knowledge domains over time, "this increase in knowledge not only causes the productive opportunity of a firm to change in ways unrelated to changes in the environment, but also contributes to the 'uniqueness' of the opportunity of each individual firm" (Penrose 1959: 52-3).

A firm's managerial capabilities

A firm's managerial capabilities are created over time by integrating the knowledge of the individual managers on a management team in ways that "enable them to provide services that are uniquely valuable for the operations of the particular group with which they are associated" (Penrose 1959: 46). Consequently, "they become individually and as a group more valuable to the firm in that the services they can render are enhanced by their knowledge of their fellow-workers, of the methods of the firm, and of the best way of doing things in the particular set of circumstances in which they are working" (Penrose 1959: 52). In a collective setting, managers should be able to complement and leverage each other's individual knowledge, both at the level of the specific knowledge components and at the level of the knowledge domains shown in Figure 8.1.

When a management collective is more or less permanent, managers are able to spe-

cialize, and thereby to build upon the competences available to a firm (Sanchez and Heene 1996). Since knowledge and mental models are to some extent irreducibly individual and thus heterogeneous (Mahoney 1995), changes in the managers who make up an organization's management teams may lead to reconfiguring and reintegrating managerial knowledge in ways that give rise to new combinations of knowledge—and therefore to new managerial capabilities at the firm level.

Thus, to sum up the above analysis, integration of various identifiable forms of individual managerial knowledge is a prerequisite for the creation of organizational managerial capabilities. Moreover, the managerial capabilities of an organization will depend on the composition and the degree of integration of the knowledge of individual managers and the stability of the management team.

MANAGEMENT LEVELS AND MANAGERIAL KNOWLEDGE INTEGRATION

In this section we apply our conceptual framework of managerial knowledge integration to different levels of management within a firm. Following Bartlett and Ghoshal (1993), we focus on three levels: front-line management, middle management, and top management. Although in each of these levels of management many of the same set of roles and tasks are performed by managers, there are differences in the relative importance of each to the overall organization. This view goes back to Fayol (1949), who stated that all activities within firms can be divided into six groups. Five of these groups of activities relate to functional areas of management. Management activities *per se* are identified as the sixth group of activities. Fayol observed that most of these activities will be present in most managerial jobs, although to varying degrees. Fayol stressed that "pure" managerial activities increase in importance in senior jobs and are least important (or perhaps even absent) in direct production or other functional jobs.

With the recent emergence of new organizational forms and the ongoing decentralization of processes in organizations, traditional boundaries between management levels are breaking down (Bartlett and Ghoshal 1993; Hedlund 1994; van Wijk and van den Bosch 1998, 2000a, 2000b; Volberda 1998). Notwithstanding this development, Bartlett and Ghoshal (1993) usefully build on Fayol's approach in describing different levels of management activities, and the differences in their relative importance by level. Figure 8.2 illustrates the relative importance of knowledge components and knowledge domains at the front-line management level.

Front-line management

Front-line managers occupy themselves mostly with functions like production (Fayol 1949) and with the creation of new (managerial) knowledge within particular functional areas or organizational units (Bartlett and Ghoshal 1993). Although they need to possess some organizational knowledge about other people in their departments and about their senior managers, and some environmental knowledge in order to identify

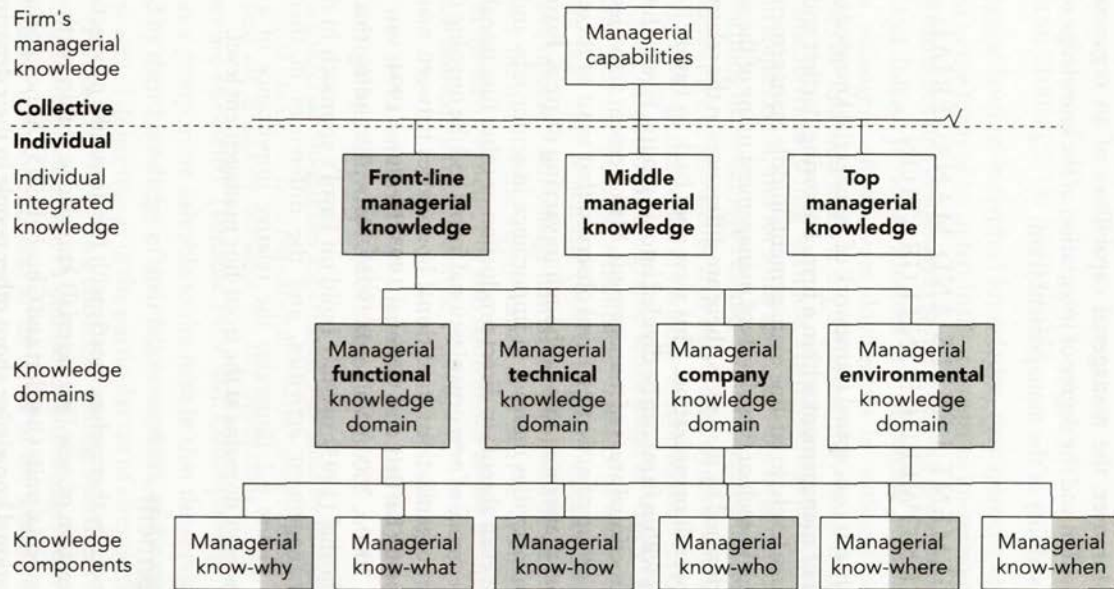


FIG. 8.2 A conceptual framework of managerial knowledge integration: the case of front-line management.
 (Source: adapted from Grant 1996.)

Note: Shared areas indicate relative importance of knowledge domains and knowledge components for a specific level of management.

appropriate capabilities and knowledge, as illustrated in Figure 8.2, their managerial knowledge is largely based on technical and functional knowledge domains. Thus, the managerial knowledge components upon which the managerial knowledge domains of front-line managers are built pertain particularly to know-how and know-who—i.e. with *how* a particular task is being performed, and with *who* is doing or can do it.

Middle management

In traditional organizations, middle managers are the implementers of resource allocation decisions made at the top. In more contemporary organizational forms, however, middle managers provide a strategic coordinating level of management—the “boosting level” of management as described by Vila and Syvertsen (2000)—in linking the firm’s resources, skills, and knowledge (Bartlett and Ghoshal 1993; Mintzberg 1994). Thus, in more contemporary forms of organizations (Pettigrew and Fenton 2000), a middle manager’s individual knowledge is mostly built on the knowledge domains of company knowledge and environmental knowledge, and less directly on the functional and technical knowledge domains. Of course, middle managers require a certain level of understanding of technical and functional knowledge before they can understand possibilities (and constraints) in linking different resources and knowledge (Leonard-Barton 1995). Yet it is environmental and company-specific forms of knowledge that enable middle managers to craft implementation designs for linking required resources and knowledge effectively, and that enable them to determine when to do so, whom to involve, and where to find essential resources.

The relative importance of environmental *versus* company-specific knowledge depends on the scope of decision making accorded to middle managers by top management. This scope may range from a strict focus on implementing a well-defined and precisely bounded part of a strategic plan formulated by top management (as in a traditional hierarchy) to being active participants with top management in defining an evolving set of strategic goals (as in an organization with a more decentralized and “empowered” form of strategic management, see e.g. van Wijk and van den Bosch 2000a). Functional and technical knowledge predominate in the former case, while company-specific and environmental knowledge gain importance in the latter case.

Top management

Top management’s function in organizations is mainly to articulate a vision of the firm’s future, and the strategic logics and strategies that can bring the firm to its intended future (Bartlett and Ghoshal 1993; Mintzberg 1994; Sanchez, Heene, and Thomas 1996). Since the strategies of firms must ultimately achieve an alignment of organization and environment, the knowledge domains relating to the company and environment are central to top management capability.

As contemporary strategies increasingly become defined in terms of processes that span across traditional functions and boundaries of organizational units, the relative importance of specific functional and technical knowledge in the top management

function has decreased. Of course, to have an understanding of the organization adequate to identify the most appropriate strategic logics and strategies to adopt, top managers still require a certain level of company-specific know-who, know-where, and know-when. The most important company-specific knowledge component for top managers, however, will be know-why knowledge regarding why the organization works the way it does, from which top managers can develop insights into the limits of the organization for competence leveraging in the near term and its prospects for competence building in the longer term (Sanchez, Heene, and Thomas 1996).

Managerial competences

Since "knowledge is fundamental to organizational competence" (Sanchez and Heene 1997: 5), so then is managerial knowledge fundamental to managerial competency. From a competence perspective, *managerial competency* can be defined as a collective ability of managers to lead an organization's competence building and leveraging by sustaining their *own* coordinated deployments of managerial resources, managerial knowledge, and managerial capabilities in ways that help their organization achieve its near-term and long-term goals. In this regard we recall Sanchez and Heene's (1996) characterization of competition as "a contest between managerial cognitions," in which managers "face the unique challenge of learning how better to manage their own cognitive processes"—and as we point out here, learning to do so *both individually and collectively*.

From this perspective, managerial competences occupy the highest level in our conceptual framework of managerial knowledge integration, in which managers must collectively apply and integrate their individual managerial capabilities in support of the wider goals of the organization depicted in Figure 8.3. Taken together, Figures 8.2 and 8.3 depict systemic interdependencies among specific knowledge components, specific knowledge domains, individual managers' stocks of knowledge, the ability of each manager to integrate his or her knowledge to create individual managerial capabilities, and the ability of an organization's managers collectively to integrate their individual managerial capabilities into a management competency. Because these systemic interdependencies include path dependencies, contextual variation (Dijksterhuis, van den Bosch, and Volberda 1999), and idiosyncratic managerial mental models and cognitive processes, managerial competences are likely to be highly firm-specific forms of

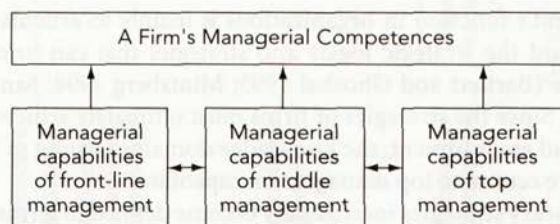


FIG. 8.3 Managerial competence building.

knowledge that go beyond any generic or industry-specific knowledge and capabilities managers of the firm may have (Castanias and Helfat 1991). As systemic interdependencies between idiosyncratic knowledge and capabilities within a firm are built up over time, a firm's managerial competences become increasingly firm-specific, difficult to imitate, and (when also effective) therefore a key determinant of sustainable competitive advantage.

CONCLUSION

Managerial knowledge has thus far been a relatively unrecognized and unexplored aspect of the creation of sustainable competitive advantage. In this chapter we have elaborated the ways in which various forms of managerial knowledge, when appropriately integrated at individual and collective levels of management, serve as the foundation for an organization's managerial competences. This view is consistent with competence-based management's emphasis on developing a dynamic, systemic, cognitive, and holistic view of management processes. We hope that the conceptual framework we have developed here will contribute to a more complete understanding of what managers at various levels of an organization must know, and what forms of integration of managerial knowledge are critical to the achievement of managerial competency, organizational competence, and competitive advantage.

REFERENCES

- BARNEY, J. B. (1994). "Bringing managers back in: A resource-based analysis of the role of managers in creating and sustaining competitive advantages for firms," in A. T. Malm (ed.), *Does Management Matter?* Lund: Lund University, Institute for Economic Research, 1-36.
- BARTLETT, C. A. and S. GHOSHAL (1993). "Beyond the M-form: Toward a managerial theory of the firm," *Strategic Management Journal*, 14 (Winter Special Issue), 23-46.
- (1997). "The myth of the generic manager: New personal competencies for new management roles," *California Management Review*, 40 (1), 92-116.
- BOISOT, M. H. (1995). *Information Space: A Framework for Learning in Organizations, Institutions, and Culture*. London: Routledge.
- (1998). *Knowledge Assets: Securing Competitive Advantage in the Information Economy*. Oxford: Oxford University Press.
- BOONE, P. F. and F. A. J. VAN DEN BOSCH (1996). "Discerning a key characteristic of a European style of management," *International Studies of Management & Organization*, 26 (3), 109-27.
- CASTANIAS, R. P. and C. E. HELFAT (1991). "Managerial resources and rents," *Journal of Management*, 17 (1), 155-71.
- COFF, R. W. (1997). "Human assets and management dilemmas: Coping with hazards on the road to resource-based theory," *Academy of Management Review*, 22 (2), 374-402.
- COLLIS, D. J. (1994). "Research note: How valuable are organizational capabilities?" *Strategic Management Journal*, 15 (Winter Special Issue), 143-52.
- CONNER, K. R. and C. K. PRAHALAD (1996). "A resource-based theory of the firm: Knowledge versus opportunism," *Organization Science*, 7 (5), 477-501.
- DIJKSTERHUIS, M. S., F. A. J. VAN DEN BOSCH, and H. W. VOLBERDA (1999). "Where do new

- organizational forms come from? Management logistics as a source of coevolution," *Organization Science*, 10 (5), 569–82.
- DONALDSON, L. (1995). *American Anti-Management Theories of Organization: A Critique of Paradigm Proliferation*. Cambridge: Cambridge University Press.
- DRUCKER, P. F. (1973). *Management: Tasks, Responsibilities, Practices*. New York: Harper & Row.
- EWING, D. W. (1964). "The knowledge of the executive," *Harvard Business Review*, 42 (2), 91–100.
- FAYOL, H. (1949). *General and Industrial Management*. London: Pelman (originally translated from *Administration Industrielle et Générale*, published by Dunod, Paris).
- FLOYD, S. W. and B. WOOLDRIDGE (1996). *The Strategic Middle Manager: How to Create and Sustain Competitive Advantage*. San Francisco: Jossey-Bass.
- GHOSHAL, S., M. HAHN, and P. MORAN (1997). "An integrative theory of firm growth: Implications for corporate organization and management", INSEAD Working Paper 97/87/SM, Fontainebleau, France.
- GRANT, R. M. (1991). "The resource-based theory of competitive advantage: Implications for strategy formulation," *California Management Review*, 33 (3), 114–35.
- (1996). "Prospering in dynamically competitive environments: Organizational capability as knowledge integration," *Organization Science*, 7 (4), 375–87.
- and C. BADEN-FULLER (1995). "A knowledge-based theory of inter-firm collaboration," in *Best Papers of the Academy of Management*. Vancouver: Academy of Management.
- HALL, R. (1997). "Complex systems, complex learning, and competence building," in R. Sanchez and A. Heene (eds.), *Strategic Learning and Knowledge Management*. Chichester: John Wiley, 39–64.
- HEDLUND, G. (1994). "A model of knowledge management and the N-form corporation," *Strategic Management Journal*, 15 (Summer Special Issue), 73–90.
- HENDERSON, R. M. and K. CLARK (1990). "Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms," *Administrative Science Quarterly*, 35 (1), 9–31.
- HILMER, F. G. and L. DONALDSON (1996). *Management Redeemed: Debunking the Fads that Undermine Corporate Performance*. New York: The Free Press.
- KATZ, R. L. (1955). "Skills of an effective administrator," *Harvard Business Review*, 33 (1), 33–42.
- KOGUT, B. and U. ZANDER (1992). "Knowledge of the firm, combinative capabilities, and the replication of technology," *Organization Science*, 3 (3), 383–97.
- KOONTZ, H. (1964). "Making sense of management theory," in H. Koontz (ed.), *Toward a Unified Theory of Management*. New York: McGraw-Hill, 1–17.
- LEONARD-BARTON, D. (1995). *Wellsprings of Knowledge*. Boston, MA: Harvard Business School Press.
- LIEBESKIND, J. P. (1996). "Knowledge, strategy, and the theory of the firm," *Strategic Management Journal*, 17 (Winter Special Issue), 93–107.
- MAHONEY, J. T. (1995). "The management of resources and the resources of management," *Journal of Business Research*, 33 (2), 91–101.
- and R. SANCHEZ (1997). "Competence theory building: Reconnecting management research and management practice," in A. Heene and R. Sanchez (eds.), *Competence-Based Strategic Management*. Chichester: John Wiley, 43–64.
- MARTENS, R., K. VANDENBEMPT and I. BOGAERT (1997). "The limits of the resource-based view on strategy and beyond: Causality thinking versus action perspective," Working Paper 97–245, UFSIA, University of Antwerp, Belgium.
- MINTZBERG, H. (1973). *The Nature of Managerial Work*. Englewood Cliffs, NJ: Prentice-Hall.
- (1994). "Rounding out the manager's job," *Sloan Management Review*, 36 (1), 11–26.

- NELSON, R. R. and S. G. WINTER (1982). *An Evolutionary Theory of Economic Change*. Cambridge, MA: Belknap Press.
- NONAKA, I. and H. TAKEUCHI (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford: Oxford University Press.
- PENNINGS, J. M., K. LEE, and A. VAN WITTELOOSTUIJN (1998). "Human capital, social capital, and firm dissolution: A study of professional services firms," *Academy of Management Journal*, 41(4), 425-40.
- PENROSE, E. T. (1959). *The Theory of the Growth of the Firm*. Oxford: Basil Blackwell.
- PETTIGREW, A. M. and E. M. FENTON (eds.) (2000). *The Innovating Organization*. London: Sage.
- PFEFFER, J. (1998). *The Human Equation: Building Profits by Putting People First*. Boston, MA: Harvard Business School Press.
- POLANYI, M. (1958). *Personal Knowledge: Toward a Post-Critical Philosophy*. Chicago: University of Chicago Press.
- PRAHALAD, C. K. (1995). "Weak signals versus strong paradigms," *Journal of Marketing Research*, 32(3), pp. iii-viii.
- SANCHEZ, R. (1997). "Managing articulated knowledge in competence-based competition," in R. Sanchez and A. Heene (eds.), *Strategic Learning and Knowledge Management*. Chichester: John Wiley, 163-87.
- and A. HEENE (1996). "A systems view of the firm in competence-based competition," in R. Sanchez, A. Heene, and H. Thomas (eds.), *Dynamics of Competence-Based Competition: Theory and Practice in the New Strategic Management*. Oxford: Elsevier Pergamon, 39-62.
- (eds.) (1997). *Strategic Learning and Knowledge Management*. Chichester: John Wiley.
- and H. THOMAS (eds.) (1996). *Dynamics of Competence-Based Competition: Theory and Practice in the New Strategic Management*. Oxford: Elsevier Pergamon.
- and J. T. MAHONEY (1996). "Modularity, flexibility, and knowledge management in product and organizational design," *Strategic Management Journal*, 17 (Winter Special Issue), 63-76.
- SIMON, H. A. (1985). "What we know about the creative process," in R. L. Kuhn (ed.), *Frontiers in Creative and Innovative Management*. Cambridge, MA: Ballinger, 3-20.
- SPENDER, J.-C. (1996a). "Making knowledge the basis of a dynamic theory of the firm," *Strategic Management Journal*, 17 (Winter Special Issue), 45-62.
- (1996b). "Competitive advantage from tacit knowledge? Unpacking the concept and its strategic implications," in B. Moingeon and A. Edmonson (eds.), *Organizational Learning and Competitive Advantage*. London: Sage, 56-73.
- STERNBERG, R. J. (1997). "Managerial intelligence: Why IQ isn't enough," *Journal of Management*, 23(3), 475-93.
- TEECE, D. J., G. PISANO and A. SHUEN (1997). "Dynamic capabilities and strategic management," *Strategic Management Journal*, 18(7), 509-33.
- TSOUKAS, H. (1996). "The firm as a distributed knowledge system: A constructionist approach," *Strategic Management Journal*, 17 (Winter Special Issue), 11-25.
- VAN DEN BOSCH, F. A. J. and A.-P. DE MAN (1997). *Perspectives on Strategy: Contributions of Michael E. Porter*. Dordrecht: Kluwer Academic.
- and C. B. M. VAN RIEL (1998). "Buffering and bridging as environmental strategies of firms," *Business Strategy and the Environment*, 7, 24-31.
- H. W. VOLBERDA, and M. DE BOER (1999). "Coevolution of firm absorptive capacity and knowledge environment: Organizational forms and combinative capabilities," *Organization Science*, 10(5), 551-68.

- VAN WIJK, R. A. and F. A. J. VAN DEN BOSCH (1998). "Knowledge characteristics of internal network-based forms of organizing," in S. Havlovic (ed.), *Academy of Management Best Paper Proceedings*, BPS: B1-B7.
- (2000a). "Creating the N-form corporation as a managerial competence," in R. Sanchez and A. Heene (eds.), *Implementing Competence-Based Strategy*. Greenwich: JAI Press.
- (2000b). "The emergence and development of internal networks and the impact on knowledge flows: The case of Rabobank Group," in A. M. Pettigrew and E. M. Fenton (eds.), *The Innovating Organization*. London: Sage, 144-77.
- VILA, J. and C. SYVERTSEN (2000). "Towards the business federation: Organizational arrangements in management consulting firms in Norway and Spain," in R. Sanchez and A. Heene (eds.), *Implementing Competence-Based Strategy*. Greenwich: JAI Press.
- VOLBERDA, H.W. (1998). *Building the Flexible Firm: How to Remain Competitive*. Oxford: Oxford University Press.
- WERNERFELT, B. (1984). "A resource-based view of the firm," *Strategic Management Journal*, 5 (2), 171-80.
- WINTER, S. G. (1987). "Knowledge and competence as strategic assets," in D. J. Teece (ed.), *The Competitive Challenge: Strategies for Industrial Innovation and Renewal*. Cambridge, MA: Ballinger, 159-84.