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Japanese Management: What About the "Hard" Skills?[1]

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Many writers on Japanese management emphasize the importance of "soft" skill, staff, style, and superordinate goal factors in managing successful organizations. It is argued here that Japanese firms face turbulent environments, making the "hard" factors of strategy, structure, and systems necessary for success. The idea of organizational learning is used to explain how Japanese firms' hard skills have equalled and sometimes surpassed those of Western firms, despite the limited professional education of Japanese managers.

The importance of management skills in the success of Japanese organizations has been underlined in a number of recent contributions, notably Ouchi (1981) and Pascale and Athos (1981). Japanese management in these books serves mainly as a foil for the development of a general argument for the superiority of a management style synthesizing the best of both Japanese and American management. Briefly, this synthesis consists of a combination of structural factors (the American type in Ouchi's treatment; the three "hard" S's of strategy, structure, and systems in Pascale and Athos' discussion) with the human resources of the organization (the Japanese type according to Ouchi, and the four "soft" S's—skills, staff, style, and superordinate goals—in Pascale and Athos). The degree of consistency achieved in the relationships between these two areas is an indicator of the strength of managerial performance in the organization. One lesson from the Japanese managers is that the soft factors might well be at least as important for success as the hard factors. A similar message, although without explicit reference to the Japanese, emerges from the recent study by Peters and Waterman (1982) of excellent companies in the U.S.

In relating these managerial skills to the ultimate success of an organization it becomes important, however, also to take into account the environment in which operations take place. As contingency theory suggests, one of the key factors in the success of a company is the degree to which an acceptable "fit" between the organization and its environment can be achieved. Managerial skills in the areas of the soft S's must be combined with strength on the side of the hard S's for this fit to be developed. One might even argue that the "goodness of fit" has more to do with the strategy and structure variables than with the softer factors, because the latter relate more to the internal workings of the organization. The treatments of Japanese management tend to ignore the role of the environment, and the consequent downplaying of the hard factors in favor of an emphasis on the softer variables is not surprising.

The fact is that some of the soft techniques utilized in Japanese organizations are a direct consequence of the lack of a "hard" professional management education among Japanese managers.

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The job rotation programs, the consensus decision making process, the on-the-job training (o-j-t), and the wide sharing of information are all predicated upon the "nonprofessionalism" of the individual manager. In the West, business schools are partially responsible for the development of hard skills. It thus is natural that the success of the Japanese model has been accompanied by attacks on the validity of business education as developed primarily in the United States (Hayes & Abernathy, 1980). Business schools in the United States seem to have forgotten that hard skills alone will not be sufficient.

But once the environment is brought into the picture, one wonders quite naturally whether, by the same token, the emphasis on the soft skills of the Japanese managers does not lead to an imbalance in the opposite direction. If, as contingency theory suggests, managers need certain hard skills in order to deal with a dynamic business environment, how do the nonprofessional Japanese managers cope? The main purpose of this paper is to answer this question.

A brief synopsis of the main line of the argument perhaps is useful at the outset. Basically it is thought that Japanese companies are usually adept at organizational learning and that this learning makes Japanese managers also very good at "hard" decision making. Faced with a complex and uncertain environment, the Japanese organization's first step in the learning process is to develop various means for scanning the task environment. The incoming stimuli are filtered through an organizational culture that is characterized by high levels of information sharing, consensus building, and wide participation in decision making. The soft management skills provide the "oil" for the internal mechanisms that serve to disperse the information throughout the firm. The organization "learns." Over time, continuous interaction with the environment generates more information feedback and new stimuli, and the organizational members gradually learn the requisite hard skills for coping successfully with forces in the environment. The process is in the spirit of, but not limited to, on-the-job training. The incentive to stay with the same Japanese company generally is very strong, and the organization can count on the individual for long term future contributions. The hard management skills in the Japanese company thus might be relatively slow to emerge, but in firms with extensive experience in an industry these skills will be very competitive indeed. Because the environment plays such a big part in the preceding argument for the importance of the hard S's, it becomes necessary to identify how dynamic the typical Japanese business environment is.

The Japanese Business Environment

The Japanese companies usually considered in management discussions generally are the large, often exporting firms (Abegglen 1958, 1973; Ouchi 1981; Pascale & Athos 1981). The environment in which these firms operate is not limited to their domestic setting, but includes a variety of countries, markets, and suppliers, as well as overseas manufacturing environments. When analyzing the successful performance of these companies, therefore, it is important to keep in mind that this success has been achieved in a wide variety of settings. Theoretically speaking, one could characterize each company's environment as highly *complex*.

As contingency theory proposes, the necessary fit between organizational elements and the environment becomes difficult to establish in such a setting. Without such a fit, performance is low. To achieve a good fit, a great deal of information about resources, demand, and supply capabilities needs to be processed before the correct organizational design can be developed. The "law of requisite variety" is operating, forcing the organizations to gather much information about the environment and structures (Lawrence & Lorsch 1967; Nonaka 1974; Kagono, 1980). Because of the number of environmental factors that must be considered, the monitoring takes the form of broad scanning rather than narrowly focused marketing research (Keegan, 1983).

There also is reason to argue that these Japanese companies face a rather *uncertain* environment. Apart from the common business risks of misestimating demand potentials and resource supply conditions, they generally face an uncertain political environment, at least in foreign countries. The market uncertainty faced by the Japanese firms abroad relates more to competitive dynamics than to ultimate customer reactions. The Japanese firms have mainly entered

mature markets where the basic need and desire for the product on the part of the consumer are in no doubt. In the introductory and growth stages, customer needs and preferences tend to be underdeveloped and unstable. In mature markets, by contrast, there is no longer a question of what function the product fulfills or why the individual needs it. Rather, the question is whether knowledgeable customers can get the exact kinds of products they want.

In the mature market, the task of the firm becomes fundamentally one of "beating the competition." As long as competitive behavior is dynamic, with frequent entries, a mature market still will show great uncertainties. For the entering firms, trying to "best" an entrenched competitor abroad generally will be an enterprise fraught with dangers and considerable risks.

In general, therefore, the typical task environments faced by the Japanese company at home and abroad can be characterized as complex and uncertain. Some environments, such as in the automobile and steel industries, even exhibit what Drucker (1980) calls "turbulence." Turbulent environments tend to be dynamically unstable and unpredictable, often because the governments of the various host countries actively intervene in the economic functioning of the markets.

In these complex, uncertain, and perhaps turbulent environments, contingency theory would propose that a premium is placed on rapid informational recovery, flexibility in organizational design, and astute timing of important decisions (Duncan 1973; Duncan & Weiss 1979). As a consequence, it is no longer sufficient to develop a good fit of organizational elements to a given complex environment. Because this environment is likely to keep changing, what once was a good fit might soon become less than optimal. Thus a premium is placed on organizational flexibility and adaptability—a continuous process requiring rapid organizational learning for successful performance (Duncan & Weiss, 1979; Nonaka & Nicosia, 1979).

The Concept of Organizational Learning

Organizational learning can be defined as the process within the organization by which knowledge about action-outcome relationships and the effect of the environment on these relationships is developed (Duncan & Weiss, 1979). This knowledge necessarily resides within individuals in the organization but is not identical to individual-specific knowhow. Rather, it concerns knowledge that is communicable, consensual, and integrated—knowledge that in a sense is shared among many (but not necessarily all) of the members of an organization's dominant coalition.

The learning involves an organizational process through which an individual's knowledge can be shared, evaluated, and integrated with that of others in the organization. Such a process need not be formal, but if the individual's learning is not validated by others' knowledge, the necessary integration might not take place and organizational adaptability is hampered.

The dynamics of the organizational learning process emanate from "performance gaps" in the Duncan & Weiss terminology. As these gaps are encountered or anticipated, search for new knowledge is initiated. The search may follow several avenues: empirical experimentation (Staw 1977), "armchair theorizing," or the use of external information sources such as competitors, government institutions, and outside experts (Nonaka & Nicosia 1979). The information search will sometimes (in the case of the Japanese company "will often") include general environmental scanning of a rather wide scope. For example, the newspapers of Peoria, Illinois, headquarters of the Caterpillar Company, are flown in daily to the Tokyo office of Komatsu, its big Japanese competitor. (Also see Nonaka & Johansson, 1984.)

The rate of acceptance of this new information, according to the organizational learning framework, depends on the degree to which it conflicts with existing paradigms and the politics within the organization, including the question of how power is distributed among the members of the dominant coalition. Finally, the new or modified knowledge paradigm must be communicated to the members so as to represent a "true" increase in organizational knowledge (Duncan & Weiss, 1979).

This description of organizational learning reveals why many of the well-known characteristics of Japanese management are uniquely suited to enhanced organizational learning. The consensus decision making process (Abegglen, 1958)

contains many features that tend to facilitate information sharing. The insistence on selection of company members at an early point in life and avoidance of the introduction of new people at higher management levels (Clark, 1979; Rohlen, 1974) also foster acceptance and sharing of communal knowledge and the integration of existing paradigms. The intensive socializing among the members of the organization (Rohlen, 1974) serves to reinforce memberships and mutuality, making it easier to accept differences of opinion and arrive at integrated resolutions of these differences (Friedlander, 1983). The oft-quoted practice of management to communicate its "reigning paradigms," although difficult to distinguish from indoctrination efforts, also serves to identify and make knowledge available to all members within the firm (Clark, 1979; Rohlen, 1974).

Skills Development Among Japanese Managers

The organizational learning concept demonstrates how important shared knowledge and collective skills are when adapting to a turbulent environment. But it also emphasizes that the basic building blocks of organizational learning come from individual-level knowledge and skills. How does the Japanese organization overcome this potential obstacle?

To set the following material in its proper context, it is necessary first to discuss the relative lack of professional education exhibited by Japanese management, particularly at the top levels (Ouchi, 1981). This tradition traces back at least to the early postwar years when lack of skilled personnel at the top levels was acute, resulting in a need to pool in some way all the available intellectual and managerial resources of a company (Clark, 1979). This accounts to a great extent for the emergence of and reliance on a consensual decision making process. It also allows properly for the recent argument that a consensual process to a degree allows managerial deficiencies to be counterbalanced by resources elsewhere in the company, in a sense protecting the individual decision maker against mistakes (Pascale & Athos, 1981). By diffusing the decision maker's responsibilities among a large group of people, such shortcomings can be made less visible and also less critical for the operations of the company. At the same time, group decision making serves to make available to the company all the skills and knowledge required in many situations of critical importance to company survival and success (Ouchi, 1981).

This background offers a partial explanation of why the Japanese challenge for so long went unheeded by Western managers. Schooled as the latter were in the professional skills taught by management programs as well as on-the-job experiences, it was easy to assume the Japanese managers would be able to catch up with their Western counterparts only slowly. Because Japan's industries had continuously sought the advice and insights offered by Western companies, it could reasonably be assumed that, given sufficient time and opportunity, they would come to develop the individual, specialized executive style favored by most, if not all, Western organizations. Japanese organizations would in time realize the dangers of "groupthink" and the great advantages of the professional management approach. The paradox is that they did not (and so far have not) adopted the professional management approach and, despite this "handicap," they have managed to become extremely successful and potent competitors with Western firms. On this subject, see the positive role of "teamwork" in developing the 64K RAM as reported by Bylinski (1981) and also Abegglen's thoughtful conclusion in his 1973 volume.

In retrospect, it is clear that Japanese organizations did not find it necessary to concentrate on the development of individual managerial skills. Apparently the quality of decision making emerging from the consensual group process proved sufficient to alleviate this potential problem. Just when this happened is a moot historical point and probably varies considerably between companies. Of interest, however, is the process of how it happened. Against the organizational learning concept and Japanese management features described earlier, the authors' interpretation runs as follows.

The Level of Shared Knowledge

The first strand of the explanation derives from the high level of shared knowledge in a Japanese organization. Over time, even less capable

persons develop skills and knowledge. When juxtaposed with the knowledge accumulated by other members of the dominant coalition, the level of shared knowledge becomes much higher than that evidenced by organizations relying on more atomistic, individualized decision making. Thus, the individual and the organization "have learned" (using the organizational learning terminology). The quality of this information initially might be less than would be the case for comparable Western organizations, because very specific skills and knowledge are at a lower level. Over time, however, the quality is gradually raised on the basis of performance gaps (competitively defined), as well as by "straight" education coming from studying Western experiences (Lyons, 1976).

The corresponding accumulation of experience and knowledge generally will be slower in Western firms, both because of a higher entry level for the incoming resources (new managers, expert consultants, etc.) and because less sharing takes place. Individual managers become much more crucial in the Western organization; they accumulate individual experience and they are asked to handle situations on an individual basis. In a sense this makes the Japanese organization much less vulnerable to executive failures (bad decisions, as well as absences and leave-taking). At the very top level this argument might be less valid; see, for example, the important roles attributed to Matsushita (Pascale & Athos, 1981) and Morita and Ibuka (Lyons, 1976). In the majority of cases, however, the Japanese organization is able to cover for an absent individual quite easily, because other individuals have a relatively greater understanding of the requisite information and also because less individual decision making is required (Kagono, Nonaka, Okumura, & Sakakibara, 1984).

As a result, one can argue, the Japanese company should show little change in policy when old managers move on and new personnel is rotated into their positions. This conjecture is borne out by the tendency of Japanese firms to stay with a decision over long time periods—even when profits are not forthcoming. The examples are many: according to annual reports Honda lost money on its Brussels operation for almost 10 years without withdrawing, finally turning the operations into the black; Toyota's operations in Indonesia have been plagued continuously by a failure to return a profit. From a Western standpoint, such insistence and "stubbornness" could sometimes be seen as an inability to cut losses early by withdrawing. The Japanese managers, on the other hand, tend to view Western companies' commitments in many instances as lower than desirable (Ouchi 1981).

The Role of Integration

The second strand of the explanation centers on the quality of the information shared. How can it be that a group of individuals often with less education and individual skills not only generate a large common base of knowledge but also manage to develop superior knowledge? Surely the well-educated, professional managers of the Western organizations have the upper hand when it comes to advanced techniques and skills.

The answer, these authors believe, is to be found in the Duncan and Weiss (1979) concept of integration. Individually, many Western managers are very knowledgeable and possess great skills. But in order for those resources to be fully exploited, it becomes necessary to integrate the knowledge from all sources into one coherent picture before making a particular decision. According to much evidence, such an integrated picture of all the implications of a given decision will be too complex for one person alone. The problems here are not only cognitive limits, but also segmented vision and the lack of lateral communication; see, for example, March and Olsen (1976) and Argyris and Schon (1978). Accordingly, the company's total information system simply cannot be brought to bear on one single decision point—in stark contrast to the Japanese consensual group processes. As a result, it is not necessary to argue that the quality of the information set available in a Japanese organization is higher than that in a Western company; the relevant fact is the quality of the information actually brought to bear on a given decision by the managers involved (Ouchi 1981). In this regard, the Japanese system seems superior to the Western style.

O-J-T of the Decision Maker

The third strand of the explanation goes a step further, however, and argues that in fact the capa-

bility of individual decision makers in Japanese organizations is, in some cases at least, equal to that of Western organizations. The argument also can be phrased to say that the inferiority of the Japanese managers to their Western counterparts has largely been eroded over time, and the situation now is one of equality, if not superiority for the Japanese. The reasoning here is based on what happens to the individual through his career with the company.

Several factors specific to Japanese organizations are at work. The group sharing process leads naturally to an exposure of junior members to higher echelon executives, and learning by example is a standard experience of the new arrivals. With slow promotion policies, the younger members are given plenty of time to absorb new information. Specific assignments of teacher-pupil (sempai-kohai) pairs (Pascale & Athos, 1981; Rohlen, 1974) also account for attention to an individual's learning and skill development. The common practice of job rotation (Pucik, 1981) also enables the individual to develop skills in a wide variety of areas, making a professional type of skill development less common but also enabling the individual to share in-depth in company operations as a whole. The standard practice of promotions based on seniority in the company, although sometimes challenged (Pascale & Athos, 1981), still is common and contributes to an openness on the part of senior managers to their juniors' suggestions and allows the latter to participate in many of the crucial decisions made by the company.

Other more mundane differences also contribute to this on-the-job education. It is well known that briefings by foreign suppliers and buyers often require the attendance of many employees from the Japanese company (Japan's strategy for the '80s, 1981). At such meetings the Japanese often overwhelm the presenters by requests for all possibly relevant information. After the meetings the Japanese attempt an immediate digestion of the information ("integration," in the Duncan and Weiss framework) allowing divergent interpretations to emerge and be discussed intensively. There is no doubt that this "technique" serves primarily as an insurance policy against possible mistakes (similar to the consensus decision making process), but it also provides education, information, and knowledge for incipient managers. As a result, one can argue, the typical "low profile" of the Japanese managers should be seen more as a reflection of the need to consult other people before making a final decision and much less as a consequence of the traditional view of Japanese managers as "only figureheads" (Kahn 1970). This is especially important to keep in mind because the lack of ability to communicate in a foreign language often makes the Japanese representative in an international meeting seem a less formidable friend or foe than frequently is the case.

Continuous Education

A final strand of the explanation of an increase in the quality of the managers in a Japanese organization is that very often there is an elaborate educational system built into the company career paths. Specific skills or knowledge are required in a Western setting; new people with the required skills or expert consultants are in fact hired. The corresponding mechanism in a Japanese company generally is to invite such outside experts or knowledgeable people, but not as permanent members of the firm, nor as problem-solving "troubleshooters" (relatively common in Western firms). Rather, the company invites the individuals to lecture to the company employees on topics relevant to the problem area, but often without identifying the exact nature or cause of the problem. This educational approach allows many of the company employees to share in the new knowledge directly—and to discuss the proffered information thoroughly among themselves. The outcome of the visit is seen mostly as the starting point for the problem solution, from which more specific readings, materials, and possible solutions can be developed by the company's own personnel. Such use of outside experts clearly serves well for integrative purposes to develop shared knowledge; it also allows individuals to develop more in-depth skills for future use (Ouchi, 1981).

The Emerging "Hard" Decision Quality

The organizational learning argument used so far in explicating the Japanese successes can

be divided into two parts. On the one hand is the notion that the Japanese organization has unusually strong capabilities of environmental scanning and information processing. The Japanese "soft" skills of management are used to assemble and disseminate information among a large number of organizational members, resulting in a high level of shared and integrated knowledge. Many of the well-known features of Japanese organizations are at work here, and most readers of the current literature on Japanese management would find this part relatively noncontroversial by now.

The second component of the argument relates the high level of shared knowledge to the quality of Japanese decision making on the "hard" issues (systems, structures, and strategies). This portion deals with the interchange of knowledge between organizational units and the individual and with the "hard" decision making skills that are developed over time. This part of the process is not so thoroughly described in the current literature. Figure 1 provides an expanded specification of this stage in the process.

The quality of hard decisions as depicted in the figure refers to the chances that the correct decision is made, contingent on the state of the environment. The correct decision is the one that maximizes the fit between the organization and the environment. Because unforeseeable changes in the turbulent environment can make a "correct" decision "bad" in terms of actual outcome, the framework should be seen as operating over a large number of situations typically encountered in a business firm. The quality of decision then can be measured by the frequency with which good outcomes are recorded over time. The plus and minus signs in the figure refer to the causal relationships between the variables. For example, as the level of sharing increases, so does the amount of learning from others, which in turn leads to improved capability of the decision maker.

Quality of Information

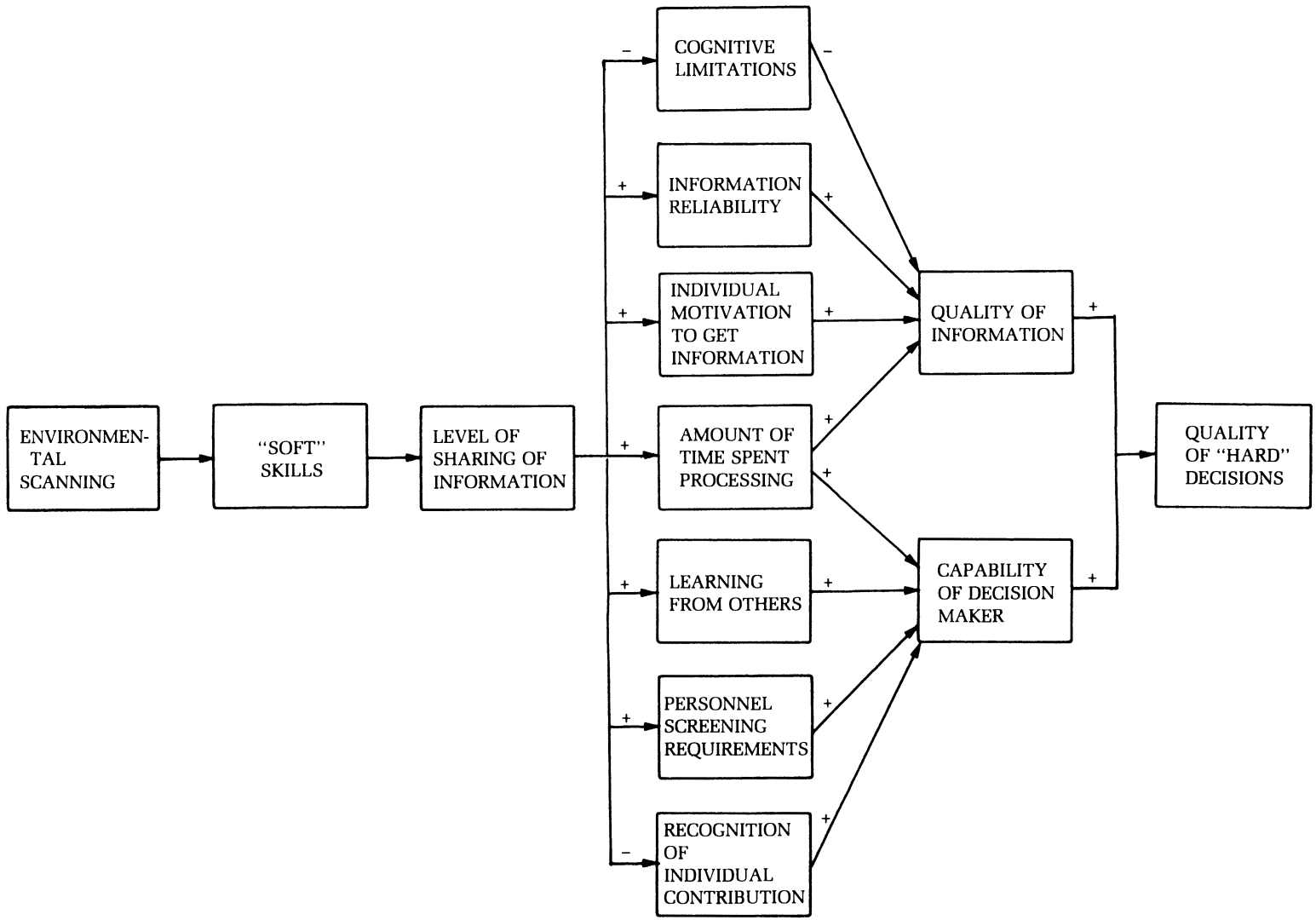
The quality of a hard decision is seen to depend on two things: the quality of information available and the capability of the decision maker. On the quality of information side, there probably is little disputing that the higher the level of shared information, the higher will be the quality. Standard arguments in information theory would consider that the redundancy that almost unavoidably is encountered in a group setting would, in general, tend to enhance the reliability of the information. Furthermore, the sharing of experiences and information among several people makes available to all members various negative (and positive) outcomes and findings encountered by other members of the group—a sort of "vicarious" learning style (Bandura, 1977). One also could argue that in a group setting the individual is more motivated to contribute new information on his own, if for no other reason than the implicit or explicit pressure from norms in the group (Davis & Luthans, 1980).

These factors are represented in the diagram as four variables that mediate the influence of information sharing on the quality of information. The first is the *cognitive limitations* that affect individual-level processing. As the sharing of information rises, these limitations become less restrictive: many heads are better than one. The net effect on the information quality is positive (from the two negative signs). Similar reasoning lies behind the positive effects mediated by the increased *reliability* of the information because of double checking, the *motivation to collect* more information so as to be able to share with one's peers, and the *amount of time* spent processing, which increases as sharing takes place.

Capability of the Decision Maker

Group processing has a great deal of influence on the capability of the decision maker. At any given time, this capability might be seen as stationary. On the other hand, over time one would expect a general increase in the capability of the decision makers; they draw on the skill acquired in making past decisions and observing outcomes. (Presumably, this also would be the case for a low level of shared processes; an individual decision maker also develops skills—but the advantage of lifetime employment in the Japanese companies is, of course, precisely that one can count on this skill to be continually improved.) By participating in the group process, the individual's cognitive limits are widened—he/she is, in fact, "trained" by the group interactions. Working against this factor is the lack of individualized recognition implicit in the shar-

Figure 1
The Process from Environmental Scanning to "Hard" Decision Quality: Explicating the Linkage Between Information Sharing and "Hard" Skills[a]



[a] + and − signs refer to causal relationships between variables.

ing process. The balancing of these counteracting forces is moved to the positive side only by the careful selection of personnel. Japanese companies tend to put great emphasis on thorough screening of new employees, to make sure they not only meet high requirements but also "fit" the particular style of the company (Nonaka & Johansson, 1984). If this procedure works satisfactorily, the negative repercussions on motivation, even in the face of little individual recognition, should be minor. Furthermore, Pucik's (1981) work demonstrates that recognition of individual merit might be greater than commonly thought. If so, this drawback of the sharing process is minimized.

These factors are summarized in the diagram in four variables. The *amount of time* spent on the processing of information influences positively the capability of the decision maker; it allows new staff sufficient time to absorb the lessons. Three additional factors influence the capability level. As the level of sharing increases, so does the *learning from others;* the senior (sempai) manager quite literally has to teach his junior (kohai) colleagues, and this affects future decision makers' capabilities directly. In another vein, the strict *personnel screening procedures* applied at the entry level for the new college recruits also serve to make sharing a productive experience for all involved, not the kind of conflictual situation that often accompanies meetings on important issues in Western settings. The possibility of no individual recognition is a negative factor, but, as Pucik says, its actual role might be rather neutral.

Cost of Time

The major cost of the high sharing process would seem to be the time it takes to complete the analysis and decide. In general, the more time available for decision making, the higher the quality of the decision (Figure 1). But the turbulence of the environment of many Japanese firms would seem to prohibit extensive use of group processes. The possibility of losing an opportunity because of a lengthy decision process must be reckoned with. This is the primary reason for the often long hours spent at the office by Japanese management with seemingly little direct work to complete (Rohlen, 1974). It perhaps is fair to argue that it is this willingness of Japanese employees to stay in the office for long hours that makes possible the implementation of a group sharing process. The decision making takes time but because of longer working hours the time (the "real" time equivalent) elapsed before a consensus is reached is still rather short. And, as a natural outgrowth of the shared information processing, once a decision has been made its implementation is rapid (Ouchi 1981).

Comparison with Theory Z

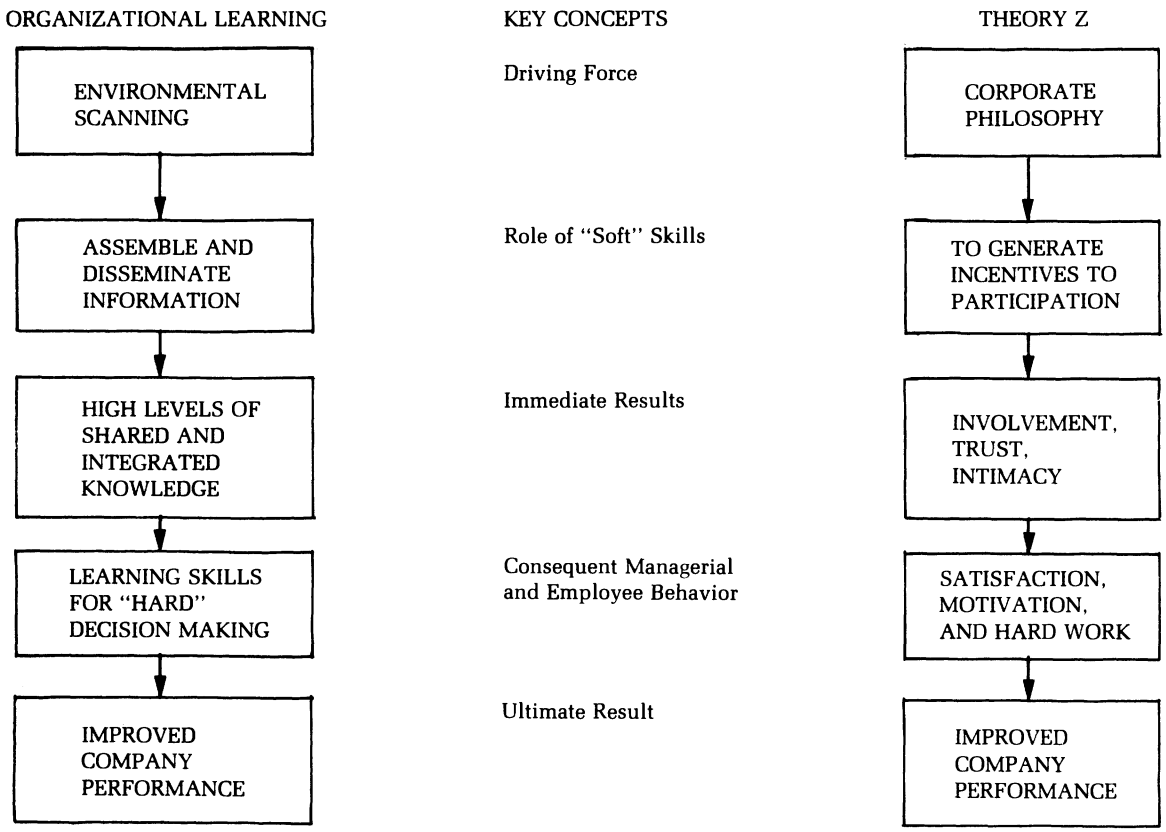
Both the proposed organizational learning interpretation of Japanese management and Theory Z presented by Ouchi (1981) attempt to account for the successful performance of the Japanese via management variables. The major features of the two paradigms can be compared in terms of the diagram in Figure 2.

Although the diagram indicates a number of distinctions between the two models, the organizational learning model may be viewed as an extension of Theory Z, introducing the environment into the equation. The Theory Z constructs lead to a highly motivated work force, and account for the famed intensity with which the Japanese dedicate their working lives to their organization (Sullivan, 1983). The organizational learning model answers the question of how well the hardworking Japanese cope with the challenges from the environment. Unless this environment is very benign, hard work in and of itself will not be sufficient for successful performance. It is necessary to "work smart," to identify and exploit the opportunities that the environment offers and to avoid or solve the problems it places in the path of the firm. This latter interface or "fit" with the environment requires exactly the kind of hard skills that are downplayed in Theory Z. The organizational learning model provides an explanation for how these hard skills are developed and shows how the dedicated work force is guided by informed managers dealing skillfully with a turbulent environment.

Summary

The basic tenet in this paper is that the successful performance of Japanese management derives not only from the well-known soft skills, but also from their skills at hard decision making.

Figure 2
A Comparison of the Organizational Learning Model with Theory Z



The managed interactions between a complex and uncertain environment and the internal workings of the Japanese organization represent a very effective organizational learning mechanism. Generally speaking, the accumulated information and experiences of the Japanese large company (from domestic as well as overseas operations) are continually processed, integrated, shared, and revised. Early on, in the domestic setting, competitive skills and interpersonal/relational skills are honed. The consensus decision making and participatory processes in labor-management relations allow the information from multiple sources and several people to be shared, to increase reliability of the information, allow one person's mistakes to be a lesson for all, provide training ground for junior employees, and increase the motivation of each individual member to contribute new data. Later, after overseas expansion has begun, the rapid increase in information needs is balanced by these group sharing processes, with information from trading companies, related companies, and government sources augmenting the company's own information retrieval system.

As the organization's information processing capability grows, so does its skills in employing the information for strategic and tactical decision making (the hard S's). It develops "know-how" and firm-specific advantages. Its competitive analysis improves, and its data base and information for important decisions become more reliable. Changes in the dynamic environment (domestic and overseas) will make old information less useful, but the hard skills acquired allow the organization to adapt as new information about the environment appears. The development of this pool of people—particularly in the "domi-

nant coalition"—also is furthered by the Japanese allegiance to the company. If there is a management advantage of the Japanese large company over its Western competitors, it resides in the experiences and skills of those members retained for their lifetimes, embodying the accumulated organizational wisdom.

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