Study on Behavioral Risk Management System

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Abstract

It is really vital for corporate management to determine the extent of uncertainty the entity is prepared to accept for increasing stakeholder's value. Board of directors would set up an entity’s strategic objective, an entity’s operational objectives, and its risk appetite. The management is expected to respond properly to the risk associated with complex environment, to guard against irrational decision-making, and over-commitment, and to introduce effective controls for securing efficient execution. Corporations should consider to critically examine their risk management system from a Humanistic viewpoint. I would like to clarify the mechanism which improves employees' risk sense, creates risk preventive knowledge and encourage proper risk communication. I refer to the risk management system properly equipped with such a as "Behavioral Risk Management System."
Risk management has moved onto the agenda of boards of directors. This represents a shift in the paradigm of corporate management. The shift has come about because it has become obvious that it impossible to manage risks singly or diffusely throughout the corporation. Just as the world has become more interconnected and complex, so have risks. Risks change with time and market. The process of scientific and technological advance creates hazards that did not exist before. It often take years, even decades, to understand these new risks. Global capital flows and instant information cause financial markets to move with incredible speed. Accordingly, many risk decisions have to be made in relatively short time-frames.

In 2004, COSO (The Committee of Sponsoring Organizations of the Treadway Commission) published the Enterprise Risk Management (ERM) Framework (the COSO2 Framework). It maintains that an entity's risk appetite should be established by management and reviewed by the board of directors, and be reflected in an entity's strategy, which in turn guides resources allocation. Risk appetite is the acceptable balance between growth, risk, and return. More simply, it is the amount of risk a firm wants to be exposed to.

Once a firm defines its risk appetite, it needs to make sure that risk is managed so as to stay within its self-imposed boundaries. The purpose of ERM is to find the right balance between the opportunity to take risk and create value, and the threat risk poses to the survival of the firm. In order to realize this balance, a firm tries to establish a common risk culture and establish internal risk models that fit the nature of its activities. Therefore, ERM can provide reasonable assurance that management, and the board in its oversight role, are made aware, in a timely manner, of the extent to which the entity is moving toward achievement of the objectives.

Drucker (1974) points out as follows: Profitability is not only a need, it is also a limitation. The objectives of a business must not exceed the profitability with it can expect to
Objectives have to be balanced against attainable profitability. They have to be balanced against each other, and trade-offs have to be established between desired performance in one area and desired performance in others. Setting objectives requires a decision on where to take the risks, a decision as to how much immediate results should be sacrificed for the sake of long-range growth, or how much long-range growth should be jeopardized for sake of short-run performance. There is no formula for these decisions. They are risky, entrepreneurial, uncertain—but they must be made. Each business requires its own balance—and it may require a different balance at different times. Balancing is not a mechanical job. It is risk-taking decision.

People often act without being aware of potential risks and sometimes make inconsistent decisions toward uncertain events. People cannot always calmly apply the laws of probability in times of crisis or accident. There are many empirical studies that find perception biases in individual and group decision-makings under uncertainty, including myopia, inertia, optimism, and pattern seeking. (For details, please refer to Goto and Hayakawa (2004, Appendix).)

It is very important for firms to recognize the existence of such biases as a precondition in designing their risk management systems. These human errors often result in accidents or fatal loss. In this regard, the COSO2 framework makes an important point regarding what can be expected from risk management (Documentation, p 10).

Well-designed and operated risk management can only provide management and the board of directors reasonable assurance of an entity's objectives.

'Reasonable assurance' reflects the notion that uncertainty and risk relate to the future, which no one can predict with certainty. Limitations also result from the realities that human judgment in decision making can be faulty, decisions on responding to risk and establishing
controls need to consider the relative cost and benefits, breakdowns can occur because of human failures such as simple errors or mistakes, controls can be circumvented by collusion of two or more people, and management has the ability to override enterprise risk management decisions. These limitations preclude a board and management from having absolute assurance that objectives will be achieved.

In effect, COSO2 acknowledges that risk-management systems themselves carry risks—uncertainty of successful execution in the face of the risks the system is intended to manage. Some ERM systems are better than others at addressing these process-related risks. In particular, I argue that a humanist-based system reduces the human errors that are responsible for a substantial share of risk-management failures.

**Risk Philosophy and Governance**

Top-level committees need to take an active interest in strategic risk management issues and ensure that systems with defined limits for risk-taking activities are in place. Furthermore, a risk-adjusted performance measurement system needs to be created within the firm so that the right incentives for disciplined risk-taking are offered. For example, in the short term, management must consider the balance between longer-term profit from investing now to eliminate future risk exposure and the shorter-term profit of keeping the status quo.

No two entities will, or should, apply ERM in the same way. ERM differs dramatically by industry, firm size, and management philosophy. A firm develops a risk philosophy and then creates a risk-governance process. Risk governance is the framework for the firm's risk-management beliefs and processes. The risk-governance structure assigns responsibility for risk to officials from various parts of the organization who must be accountable to the board of directors.
Banks (2002) illustrates and explains the risk-governance framework using as follows:

A firm wishing to enter the risk-taking arena must ensure that it has proper commitment from key stakeholders and possesses sufficient financial resources to support the activities. ... Shareholders supply a firm with capital by understanding the nature of the firm's business. Shareholders will not continue to provide equity capital without limit. At some point the marginal return on risk will be inadequate, shareholders will become too diluted, the stock price will decline and it will no longer make economic sense to issue more capital. Accordingly, capital in support of risk-taking activities must be regarded as a finite resource. (p 28-29). ...

In order to ensure that a firm's philosophy of risk is properly understood, the vision must be communicated clearly to all of those inside, and outside, the firm that have a stake in the process; as the market environment changes, the risk philosophy should be revisited and
updated. (p 35). ...

In a typical risk governance structure, the board of directors, having been advised by executive management on the firm's intended approach to risk (and having also consulted with key external parties, such as regulators and rating agencies), might create a risk mandate which defines the risk appetite and operating parameters, and sanctions the creation of a risk committee and risk controls [and] policies; the mandate may also delegate specific risk authorities to senior officials. A risk committee, chaired by the senior risk officer and comprised of senior business unit and control managers, might be charged by the board with creating a risk process that includes development of risk policies and establishment of high level risk limits (that reflect the firm's risk appetite). (p 40).

COSO2 uses a three-dimensional matrix to illustrate risk management structure.

- The four objectives categories-strategic, operations, reporting and compliance - are represented by the vertical columns.
- The eight components are represented by horizontal rows.
- The entity and its organizational units are depicted by the third dimension of the matrix.

Note to figure:
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Convergence of Science and Art

To manage risk, it is necessary to identify and assess it. Usually, risks from natural disasters, credit, financial markets, and operations are within the scope of risk assessment. We try to evaluate risk in an objective and scientific way. However, a quantitative risk evaluation model cannot be a surrogate for management decision and common sense. This is partly because new risks might be worse than what we have had in past, and partly because operational risk is extremely difficult to quantify.

Operational risk refers to the risk of loss resulting from inadequate or failed internal processes, people, and systems, or from external events. This does not directly affect the value of either assets or liabilities, but has often been the ultimate cause of company failures or man-made catastrophes. Whether it is explicitly quantified or not, the company's capital also acts as a protection against operational-risk related losses.

Banks (2002) points out the importance of both quantitative and qualitative technique as follows.

Firms active in risk-taking businesses should seek to draw on both quantitative and qualitative approaches to help them manage their exposures. Quantitative risk management, which relies on mathematical models and techniques to identify, quantify and manage exposures, is one major approach to risk control; qualitative risk management, which focuses primarily on experience, judgment and common sense, represents a second major approach. Indeed, the "combined" approach may well be the best one, as the truly effective risk process draws on the strengths of quantitative and qualitative techniques to overcome individual shortcomings and weaknesses that characterize each discipline. Qualitative approaches to risk management are periodically ignored in favor of purely quantitative techniques. The prudent firm must never forget that judgment, experience and common sense can be powerful
tools in helping create a strong risk process. The creation and application of qualitative methods of risk management, combined with relevant quantitative processes, can help a firm develop the strongest possible framework for managing the risks surrounding core business. (p 1).

While it is unlikely that qualitative approaches alone would have protected against all financial difficulties, it appears that proper implementation and use of basic risk discipline would have helped in certain situations.

Financial crises typically reveal problems, mistakes and weaknesses, and lessons on preventing future problems can often be drawn from these crises. Prudent companies follow such lessons diligently, while others may follow them for a period of time, until unpleasant memories have faded, and then revert to their previous behavior and practices; still others ignore the lessons entirely, carrying on as if nothing had occurred. (p 6-7).

There is no denying the power and utility of financial models. And, advances in computing power, as well as modeling and analytic capabilities, have, caused firms to push the role of human judgment and experience into the background.

However models have limitations that can give rise to "model risk": the failure to recognize limitations, which may lead to financial losses. Many models are created by making simplifying assumptions. Such assumptions may be necessary to obtain reasonable results, eliminate extraneous information, or create an efficient computing process. Some of the assumptions may be reasonable in the context of a single trade or product or within simple portfolios. In other cases, assumptions might be unrealistic, or even flawed, when applied to complex products or larger portfolios.

In many instances, there are insufficient data about a risk to define it precisely. Events rarely happen in the way assumed by mathematical probabilities, and there are
constraints. Moreover, assumptions about the future depend on human art that is, management and employee intuition and tacit knowledge. However, empirical studies show there is often a gap between "risk assessment" through an objective approach such as using statistical techniques and the subjective approach of "risk perception."

On this point Banks (2002) notes as follows.

While managers need to be familiar with the skills and motivations of all of their employees, they must be especially attuned to those responsible for managing the firm's economic capital. ... Before allowing anyone to occupy such a role, management needs to ensure that technical skills are undoubted and professional strengths, weaknesses and risk-taking behaviors are well understood. Understanding how personalities and skills figure in the management of a risk business is important in the business risk process: not only does a firm learn about the true capabilities of its personnel, but it can then allocate them optimally. ... Firms that discover they lack the necessary talent may decide to limit their risk activities until the skill set is strengthened; those that realize they have a talented team may decide to expend their risk horizons by earning new markets and products. Evaluation of skills should be a continuous process; management should strike to spend time with traders, trading managers, bankers and other business leaders on a regular basis. (p 33).

**A Humanistic Approach**

The path to an appropriate risk management system is an endless journey. There are known knowns, known unknowns, and unknown unknowns. Human behavior and decision-making influence strategic risk and operational risk directly, and indirectly effect financial and hazard risk through perception bias. Thus, the following points are vital.

* Corporate performance is accomplished by the people belonging to an organization.

* People do not always understand, communicate, or perform consistently. Each person has a
unique point of reference which influences how risk is identified, assessed, and responded to.
* Human bias, error, and mistake in decision making exist. These undermine the effectiveness of risk management.

Makridakis (2002, ch 2) points out the biases and limitation of our judgment as follows.

Organizations ignore the existence of judgmental biases and their detrimental consequences. What should be done is to recognize the danger biases represent and to take appropriate steps to minimize their possible ill effects. ...

Consider the implications of these facts. If we believe something, we tend to search for information that proves our point of view. If we come across conflicting evidence, we are inclined to disregard it as irrelevant. Furthermore, our memories retain supportive evidence better than dis-confirming evidence.

Therefore, agreeing to disagree must be accepted as an organizational necessity in order to eliminate judgmental biases.

However we should bear in mind that introducing the process of agreeing to disagree into the organizational decision has costs and may delay action.

For eliminating human error in decision making the following three points should be improved.
* Understanding of behavioral trends particular to the individuals and organization of a firm.
* Development of consistency in risk control.
* Establishment of a risk-management culture fitting the particular working environment.

**Effective ERM System**

Enterprise risk management (ERM) consists of two components. These are the basic ERM framework and the core capability of a particular firm. It is not so difficult for a firm to adopt
some standard framework like COSO2. However, how the system fits a firm's core capability is vital. In order to make it workable, I emphasize the importance of the humanistic factors.

Modern society is becoming more and more sensitive to risk. Accidents are traditionally the product of mishandling, design flaw, or procedural problems in which human error is usually involved. Under modern, complex technological systems, such small failures occurring routinely periodically combine in unforeseen ways to create much larger failures, which can lead to catastrophe. Sometimes, human error in vital decision-making causes a fatal scandal. An example is Nick Leeson and the Baring case. It demonstrates over-committing to a failing position (or to a series of wrong decisions), which is called "escalation".

The foundation of escalation lies in irrational behavior at three distinct levels- the individual, the group, and the senior executives. The larger an organization is, the more the risk exposure expands and diversifies. Therefore, management must pay much more attention to humanistic factors in managing risk and invest more resources to eliminate human error as part of any sophisticated risk management system. Human behavior in an organization is influenced by the corporate culture, management system, and business process.

The risk management system should be equipped with devices for eliminating human error and perception bias and improving the risk sense of members of the organization. I call a system equipped with devices to eliminate human error and create knowledge on risk solution a BRMS, a behavioral risk management system.

**Risk Sense and BRMS**

Kamei (2004, p 18) indicates that a firm's risk is deeply affected by wrong decision making and improper response to environmental changes caused by lack of control, lack of information, lack of time, lack of sensibility, or lack of character.

Improvement of risk sense is very important, because lower levels of risk sense lead
to the following situations.

* Risk philosophy and governance are vague and incomplete, and risk limits and decisions are not properly documented. As a result, misinterpretation and arbitrage by business routinely happen.

* Management does not understand the nature and magnitude of the risks to be taken and thus develops an inappropriate, misleading, corporate strategy.

* Business managers routinely appeal negative risk decisions (that is, seek to take on additional risk) and lose the chance of increasing a firm's value because of a lack-of-knowledge risk.

* Communication between risk officers and business managers is strained and counter-productive because risk officers trend not to be visible and responsive, while business managers trend to violate or ignore risk processes.

From a management viewpoint, human-related risk is rooted in people's intrinsic attitude. Therefore it is not solved simply by top-down instructions. Instead, it is necessary to improve the internal environment as a whole. A firm should endeavor to promote risk disclosure and dialogue for mutual understanding, and discipline to achieve proper behavior. In short, a firm should support a sensible culture for dealing with risk.

For establishing BRMS I would like to emphasize the improvement of people's risk sense and the proper mechanism for changing tacit knowledge of risk to explicit understanding.
The following cycle should be operative in BRMS.

**Importance of Risk Communication**

As global financial markets continue to expand, and become more volatile and inter-dependent, the marketplace is moving toward a standard of more financial disclosure and regulators are seeking more information regarding risk activities.

The function of the risk process is to protect the firm and its shareholders from unexpected losses and other financial surprises. Risk communication both internally and externally has become more important over time. Failure to provide relevant information to the parties concerned can lead to loss of confidence and financial stress. Delivering the right
information to the right people, at the right time, is a vital dimension of proper risk communication.

**The Chance of Human Error**

One person's high risk is another's lark. Individuals carry vastly different responses to uncertain events for various reasons. Thus, people can be: unconscious as to the risk, conscious as to the risk but not know how to respond conscious of the risk but ignore it through mis-evaluation or perception bias.

Makridakis (2002) advises as follows: "Inconsistency can be avoided by formalizing the decision-making process. This would require deciding first what factors are important to consider in making a certain repetitive decision; second, how such factors should be weighted (one might be twice as important as another); and third, what objective should be optimized."

It is useful to standardize the organizational response to recurring risky situations. However, care is needed to avoid compounding problems through formal rules that do clearly define terms and how to report and treat situations.

Banks (2002, p 56) explains as follows.

It is important for the governing risk authority to promulgate consistent rules and policies. These should be as clear and consistent as possible and leave no room for doubt or misinterpretation; failure to do so can result in 'subjective' interpretation by different businesses and regions. Taken to its extreme, inconsistent standards (eg, policies which treat identical risks in very different ways) can lead to 'internal arbitrage;' this can create considerable problems and may ultimately cause a breakdown in the risk control process. For instance, if a risk policy governing the US interest rate derivative desk requires that collateral be taken on all trades with sub-investment grade counterparties, but the same requirement does not exist with the Euro interest rate desk, there exists considerable incentive for the US traders
to book transactions through the Euro desk. In instances where consistent risk standards are not applicable, differences, and the rationale for such differences, should be well publicized.

**Risk-Preventing Knowledge Creation**

Directors and officers try to eliminate strategic risk and review the firm's risk philosophy and governance by horizontal communication across industries and with shareholders, society, and customers. Groups interacting in horizontal and vertical communications within a workplace, and with customers and business partners, is necessary for eliminating risk lurking in an operation.

Sometimes "creative chaos through overlapping task, or group interaction" is regarded as an inefficient process, but from an operational-risk management standpoint, it should be viewed more positively. Just as convergence of different knowledges and technologies into a larger configuration provokes knowledge-based innovation, so the convergence of different personal insights and know-how based on individual experience generates knowledge-based innovation in risk management.


The ball being passed around in the team contains a shared understanding of what the company stands for, where it is going, what kind of a world it wants to live in, and how to make that world a reality. Highly subjective insights, intuitions, and hunches are also embraced. ... That's 'what' the ball contains namely, ideas, values, and emotions. ...  

[T]he ball does not move in any defined or structured manner. Unlike [in a] relay, it does not move linearly or sequentially. ... It is determined on the spot ('here and now'), based on direct experience and trial and error. ... It requires an intensive and laborious interaction among members of the team."
The following illustrated working structure of the archetype Japanese corporations is illustrative of good communication for risk management.

The following players contribute to fostering a practical group interaction and also to workable operational risk preventive proceedings through combinations of the following functions.

* Top management:  Sets clear risk philosophy, governance, and strategy.

* Senior management:  Sets a concrete strategy and objectives, and shows them to the work
place.

* Middle management: Derives tacit knowledge from group members and changes it to explicit knowledge through encouragement of group interaction.

* Experienced experts (sometimes called takumi): Give practical advice to overcome specific problems and issues in a project.

* Group members: Provide new ideas from the perspective of their own ability and experience.

Middle management and takumi accelerate group interaction, acting as boundary-spanners and catalysts. Generally, "redundancy", with its connotation of unnecessary duplication and waste, is unappealing. However, redundant organization plays an important role in the knowledge-creation and risk-mitigating process. Redundancy can provide a "common cognitive ground" among employees, encourage frequent dialogue and communication, and facilitate transfer of tacit knowledge. Intentional redundancy adopted properly is a powerful tool in risk management. Through group interaction, employees share and learn from each other the various errors and past mistakes experienced individually. This enables a corporation to feed the experience into management of future risks.

Information transmissible through IT is mainly explicit knowledge. The important function of middle management is to be a bridge between top management and the workplace. Middle managers are a catalyst for the solution of specific issues on the front line, utilizing tacit knowledge.

It is said that the essence of risk management lies in maximizing the areas where we have some control over the outcome while minimizing the areas where have absolutely no control and the linkage between cause and effect are hidden. How can we maximize the areas of controlled risk? The answer is to improve the risk sense and the risk-related tacit
knowledge of the individuals, and to share the explicit organizational knowledge widely.

New and unexpected events occur every day and must be responded to by using all the available knowledge of past experience to similar events. These experiences accumulate in an organization and gradually improve employee and organizational risk sense and solution skill.

The past successes and failures of ourselves and others can be examined from the viewpoint of risk management. For example, the Baring case suggests that in a securities-trading operation, the segregation of front- and back-office duties is essential, as is the existence of a strong, independent risk-management function. Independent scrutiny of positions must be performed by an independent function capable of interpreting the risks.

The Long Term Capital Management case indicates that financial risk and trading models used to estimate exposures have limitations because the unthinkable trends to happen. (Thus, for example, the value of collateral can deteriorate rapidly, especially in an illiquid market). Enron suggests that inadequate financial disclosure may ultimately lead credit providers, investors, and rating agencies to lose confidence in a firm. The huge losses on complex financial products by Procter and Gamble and Orange County (California) suggest that leverage can compound returns but at the same time also compound risks, which results in having excessive concentrations of the particular risk. The losses also illustrate how even highly paid specialists (including those at the banks involved) can have no real understanding of what they are doing, as well as the willingness of banks and trading firms to impose risks on their customers with little disclosure.

**Corporate Culture and Group Interaction**

Schein defined culture as "a pattern of basic assumptions invented, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration that
has worked well enough to be considered valid and therefore, to be taught to new members as the correct way to perceive, and feel in relation to those problems."

Corporate culture and fundamental management systems provide the basis of the risk-solving devices used by organizations. The culture is formed gradually, by the accumulation of day-to-day risk communications and knowledge-creating activity among people in the organization, a process called group interaction.

A survey done by Sakuma (2004) shows that there is a positive correlation between the strength of trust between superiors and subordinates and the performance of Japanese firms. It also suggests that subordinates appreciate learning from superiors and have good feeling about superiors' warm and flexible management, which take into consideration subordinates' private lives.

Sakuma points out that exceptional Japanese companies have an issue-solving working mechanism, which is supported by good team work under mutual trust and warm humanistic relations between superiors and subordinates. That results in sharing tacit knowledge and realizing the improvement of the working process as explicit knowledge.

Most Japanese companies have a team-working systems like on-the-job training (OJT) and quality control activity (QCA), which foster learning-by-doing, and a permanent employment system that gives employees an environment of long-term commitment and self-realization.

I would like to focus on the relations between sophistication of risk management and the effect of group interaction, which gradually forms the high-context organization of a qualified risk-management culture.

Banks (2002, p 52, 53) advocates a stronger risk culture as follows.

[P]rofessionals may have an excellent understanding of the market, its risk dynamics,
hedging strategies, valuations, and so forth. However, that knowledge may reside exclusively within the small group. Senior managers, junior traders, risk managers and controllers may lack detailed knowledge on how the team takes and manages its risk. If the bond team leaves, the firm instantly loses its market presence, knowledge, profitability and, most importantly, risk management skills. ... Accordingly, a regular practice of disseminating risk expertise to other senior managers, business leaders and risk officers through rotations, detailed discussions, risk updates, and so on, should be part of the governance process. ... [I]t is important to create a mechanism that allows the memory of institutional risk management to be preserved; this allows a firm to continually expand its core knowledge base. ... [R]otating key trading managers through the risk management function so that they develop, and disseminate, an understanding of the risk function; permitting risk managers to rotate through different parts of the organization so that they can impart risk knowledge to a broader audience; and so forth. Any device that preserves risk memory will help build a stronger risk culture.

Knowledge-Creation Model

Nonaka and Takeuchi (1995) introduced a knowledge creation-model by combining practices from both the West and Japan. In their model, the two interaction - between tacit knowledge and explicit knowledge and between the individual and the organization - bring about four major processes of knowledge conversion, which together constitute knowledge creation: (1) from tacit to explicit; (2) from explicit to explicit; (3) from explicit to tacit; and (4) from tacit to tacit.

If we adapt this model to the risk management process, we can illustrate as follows. The tacit knowledge of staff who have experienced excellent risk management is shared with other staff (socialization). Next, the tacit knowledge is transformed into explicit knowledge that can be easily transferred and actually utilized explicitly by the organization.
(externalization). Then, by utilizing the knowledge explicitly identified as part of a system or set of procedures, and combining it with newly obtaining tacit knowledge, there is an improvement in the risk management scheme (combination). Finally, through actual practices guided by procedures or manuals (that is, the framework of explicit knowledge) we are able to learn additional tacit knowledge related to risk management (internalization).

Nonaka and Takeuchi (1995, p 198, 199) also explain the differences between Japanese and Western approaches to organizational knowledge creation as follows.

The key differences are found in three areas.

First, the interaction between tacit and explicit knowledge in the West tends to take place mainly at the individual level. Concepts tend to be created through the externalization efforts of top leaders or product champions and are then combined organizationally into archetypes of new products, services, or management systems. In Japan, on the other hand, the interaction of tacit and explicit knowledge tends to take place at the group level. Middle managers lead knowledge-creating project teams, which play a key role in sharing tacit knowledge among team members. This tacit knowledge interacts with explicit knowledge, such as a grand concept advanced by top management and information sent from the business front line (called middle-up-down management).

Second, Western business practices emphasize explicit knowledge that is created through analytical skills and through concrete forms of oral and visual presentation, such as documents, manuals, and computer databases. Western-style knowledge creation can lead to the so-called "paralysis by analysis" syndrome. On the other hand, Japanese business people tend to rely heavily on tacit knowledge and use intuition, figurative (i.e., ambiguous) language, and bodily experience in knowledge creation. They are relatively weak in analytical skills, for which they compensate by frequent interaction among people (socialization). Another strength
in Japanese-style knowledge creation is internalization. Once an archetype is created, high-quality tacit knowledge is quickly accumulated at the individual and organizational levels by mass producing or implementing an archetype. The emphasis on tacit knowledge in Japanese-style knowledge creation can lead to "group think" and the "over-adaptation to past success" syndrome.

Third, Western-style knowledge creation is receptive to certain enabling conditions, such as clear organizational intention, low redundancy of information and tasks (i.e., creative chaos is produced not by sequential performance of tasks but by the "natural" requisite variety), less fluctuation from top management, high autonomy at the individual level, and high requisite variety through individual "natural" differences. In contrast, Japanese-style knowledge creation is characterized by relatively ambiguous organizational intention, high redundancy of information and tasks (i.e., creative chaos through overlapping tasks), frequent fluctuation from top management, high autonomy at the group level, and high requisite variety through cross-functional project teams.

I would like to review the characteristics of the way Japanese corporations encourage group interaction rooted in a historical background and traditional values.

Buddhism as Work Ethic

When we think about work ethics and values, historically, philosophy and religion are at the bottom. Hofstede (1997, p 131, 132) comments that

What distinguishes Western from Eastern religions is their concern with Truth with a capital 'T'. The Western revelation religions share the assumption that there is an absolute Truth which excludes all other truths and which man can possess. ... Eastern religions are less concerned about Truth. The assumption that there is one Truth which man can possess is absent in their thinking. Buddhism instead stresses the acquisitions of insight by meditation. Thus in
the East, people will easily absorb elements of different religions. Most Japanese perform two religious traditions.

Buddhism reached Japan in the 6th century via China and Korea. At the beginning of the 7th century, the then-prince Shotoku, who was in charge of affairs of state, made a deep study of Buddhism. His work was influenced not just by Buddhism, but also by Chinese influences, including Confucianism, Taoism, and Legalism. This served to spread Buddhist belief.

Dosho transmitted the Hosso teachings from China to Japan in 660. From the late 7th century to the middle 8th century Gyogi traveled around the capital and countryside preaching to and converting the masses. In the late 8th and the early 9th century, Saicho returned from China and transmitted the Tien Tai doctrine, while Kukai introduced Tantric Buddhism from China.

There has been a naturalistic religion called *Shinto* that grows out of the everyday life of Japanese in primitive times. In *Shinto* there has been the Japanese indigenous belief in a superior and mysterious force of nature, the sacred, called *kami*, which resides in natural elements. As Buddhism gained a foothold in Japan in the 7th century, people gradually accepted such a Buddhist belief as that not only human beings but all existing things, animate or inanimate, possess “Buddha-nature” in themselves. One can thus extend oneself into nature no barriers. (the amalgamation of Shinto and Buddhism)

Yuasa(1999) explains that the ritual factor of Tantric Buddhism had accelerated the amalgamation which seems to have been established through Kamakura or Muromachi era (from the 12th century to the 15th century).

Until the 12th century, Buddhism was the religion of the aristocracy only, but from about the 13th century it became very popular among the common people. At about this time, Zen Buddhism became widespread among the warrior class. And an important function of zen
was to educate the young. Since that time, up to the present day, Buddhism has been the principal religion of the Japanese people. Traditional Japanese cultural education (tea ceremony, sword play, calligraphy, etc) is carried out in a zen tradition. And, Japanese have made of Buddhism a religion of the here and now, for example, rock gardens, special occasions for viewing the moon or cherry blossoms, and the like.

Blocker and Starling (2001) explain this as follows

People are seldom aware of their own cultural biases as they translate from a foreign culture into their own. Buddhism in Japan became something other than Chinese and Indian. In that sense, imitation, too, is invention. (p 10, 11). ...

In one way Japanese Buddhism carried still farther a movement already begun in China away from certain tendencies in Indian Buddhism. Indian Buddhism is based on a very firm pre-Buddhist foundation of the doctrine of reincarnation. Since we are born and reborn many times, we have the opportunity to gradually perfect our practice and understanding of Buddhism until "we finally get it right" and at last achieve Nirvana (salvation), however thousands upon thousands of lives this may take. ... Chinese Buddhism, especially Chan [zen] Buddhists, sought ways to short-circuit this long process and achieve sudden enlightenment attainable in this life.

They sought sudden enlightenment through intuitive leaps of insight; with late Tantric Buddhism the same immediate illumination was sought through secret, magical means. Japanese Buddhists carried the movement toward sudden enlightenment in this lifetime even farther. ... Japanese Tantric Buddhism (shingon, Mantra) became very popular precisely because it preached instant enlightenment through magical incantations and secret formulas. ... Tantric Buddhism continues even today as a major Japanese school. (p 41-43).
Tantric Buddhism emphasize the importance of *shugyo* (religious discipline) through which self-enlightenment (awakening to the truth) is attained. The tantric doctrine is not a theoretical truth at all; the truth of *shingon* is not something that can be mastered by even the keenest intellect, but, as Kukai says, something which must be "attained" in actual practice, in one's life, and not just in one's understanding. In this sense it is truly beyond words (a non-theoretical intuition).

I think that the Japanese value of such a non-theoretical intuition is one of the elements which respects personal experience and fosters tacit knowledge. When we cope with risk-related events, a person's tacit knowledge often is a trigger to understand it and to create a device for a solution. Managers in Japan emphasize the importance of learning from direct experience through trial and error. Like a child learning to eat, walk, and talk, they learn with their minds and bodies. This tradition of emphasizing the oneness of body and mind has been a unique feature of Japanese thinking that is rooted in Buddhism.

The Japanese *Rinzai Zen* sect developed the practice of posing *koan* which is the method of the direct "mind-to-mind" transmission of the essential truth from a particular teacher to a particular student through identifying a sign of insight. Such mind-to-mind transmission seems to me a close relations to Tantric behavioral values (a non-theoretical intuition). Tacit knowledge is respected in the working place which seems to me something related to the Tantric behavioral values.

**Loyalty to the Company**

The Japanese employment system is often explained by three core features: (i) age seniority; (ii) company specific skills; and (iii) long term employment. These three factors are influenced each other and have formed the particular corporate culture and competitiveness.
A traditional large Japanese company looks like a big family. The company takes care of its workers and their dependents as the head of family does. Normally, people enter a company for life, sharing the fate of the company. This long term employment system is often compared to a feudal clan. Loyalty to business organizations and total involvement in work are highly valued, and the *bushido* principles of resoluteness, loyalty to the lord, noblesse oblige, courage, and wisdom are referred to in boosting employee morale. (On *bushido*, see Nitobe (1900).)

Many business people, consciously or unconsciously accepting these ideas, make strenuous efforts to fulfill their duty and work overtime of their own accord.

Employee loyalty can be a win-win relationship for both employees and management in the long-term history of a firm. For example, OJT cultivates employee skills and compiles them as organizational competence, which improves productivity and the quality of corporate performance, resulting in job security and the sustainability of a long term employment system.

The loyalty of the employees to the corporation is supported by the pay and promotion systems. Japanese systems are unique in the extent of their reliance on seniority, although the near-term performance of individuals is considered as an important factor, as well. The seniority system ensures promotion on condition the employee continues to work hard and acquires a certain amount of technical knowledge and skill.

Takahashi (2004) points out that the essence of the Japanese seniority system is to be rewarded by the content of the next job. In this sense, salary is separate from incentive and motivation, and is mainly treated as a security-of-life-spending cost. He also emphasizes that this essence is important because a person is satisfied directly by the quality of performance, not principally by the amount of reward.

I think that both the permanent employment system and the seniority system are
strong components that enable Japanese companies to commit to their long-term strategies.

Also, the sense of equality among employees seems to encourage loyalty. The relationship among colleagues in Japanese companies is a feeling of closeness cultivated among doki (a group entering a company at the same time). Every spring, a number of new workers of about the same age and similar backgrounds join the company directly after graduating from universities or high schools and undergo OJT together. They start in low positions with no titles and under the pressure of unaccustomed jobs, so they tend to feel strong affinities with one another. They sometimes form a social group, which can develop into a faction intending to undertake a significant role in the company. This consciousness of being equally ranked and working in the same situation is figuratively expressed as "eating rice cooked in the same pot". However, differences in competence and enthusiasm sooner or later emerge through everyday work. Those who distinguish themselves by their competence, reliability, kindness to others, and modest behavior are sure to gain popularity among their colleagues. This leads to taking a leadership role in senior management and, ultimately, for a few, to being CEO and a member of the board.

I think that such a management system and the relationships between employees and corporation create a basic working environment that fosters group interaction and encourages knowledge creation.

**Excellence of Day-to-Day Operation as Competitiveness**

The artisan (shokunin) spirit still remains in employees, although artisans themselves have been declining in type and number since the rapid development of mechanized factory production. Artisans are now regarded not only as experts who have obtained something true in life through their own careers but also as an exemplars of honesty, stubbornness, bluntness, and human warmth.
The QC (quality control) circle is a small group of workers who take care of the quality control of their products. Since they serve as the final filter before products are put on the market and are responsible for everything, they tend to have an enhanced sense of responsibility. Such activity is rooted in day-to-day operations. It becomes routine, and hence easy, to work together to eliminate mistakes or error in operation. Such QC activity (QCA) by small group was started by US companies in the 1960s under the name Zero Defect movement. QCA has successfully settled in Japan as Total Quality Management (TQM) or Total Preventative Management (TPM), which are great influences on operational risk management.

Framework of BRMS

In closing, I summarize the characteristics of the Behavioral Risk Management System by referring to the essential factors explained so far.
Consistent and continuous accumulation of the risk solution skill forms high context organization

Working situation
- Top down management
- Middle up-down management
- Bottom up management

Basic infrastructure
- Ethical policy
- Risk philosophy and governance
- Corporate culture
- Permanent employment system
- QCA, OJT, etc.
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